# JVC



MODEL R-S11L

STEREO RECEIVER



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#### Warning:

When replacing the parts marked with  $\triangle$ , be sure to use the designated parts to ensure safety.

# 1. Specifications

FM Tuner Section (Figures are based upon IHF standard)

Tuning Range : 87.6 MHz - 108 MHz Usable Sensitivity (IHF) : 10.3 dBf (1.8  $\mu$ V/300  $\Omega$ )

50 dB Quieting Sensitivity

Mono : 14.8 dBf (3.0  $\mu$ V/300  $\Omega$ ) Stereo : 38.3 dBf (45  $\mu$ V/300  $\Omega$ )

Distortion

Mono : 0.15 % (1 kHz) Stereo : 0.3 % (1 kHz)

Signal to Noise Ratio

Mono : 82 dB (74 dB, DIN)
Stereo : 70 dB (65 dB, DIN)
Selectivity : 65 dB, ±400 kHz
(35 dB, ±300 kHz, DIN)

Capture Ratio : 1.0 dB

IF Rejection : 90 dB at 98 MHz Image Rejection : 60 dB at 98 MHz Stereo Separation : 45 dB at 1 kHz

**MW Tuner Section** 

Tuning Range : 525 kHz - 1605 kHzUsable Sensitivity :  $300 \mu\text{V/m}$ ,  $30 \mu\text{V}$ (External Antenna)

Signal to Noise Ratio : 50 dB

Distortion : 0.5 % at 10 mV/m

Selectivity : 40 dB,  $\pm 10 \text{ kHz}$  36 dB  $\pm 9 \text{ kHz}$ 

**LW Tuner Section** 

Tuning Section : 150 kHz - 350 kHzUsable Sensitivity :  $500 \mu\text{V/m}$ ,  $300 \mu\text{V}$ 

(External Antenna)

Signal to Noise Ratio : 50 dB

 $\begin{array}{ll} \text{Distortion} & : 0.5 \% \text{ at } 10 \text{ mV/m} \\ \text{Selectivity} & : 40 \text{ dB}, \pm 10 \text{ kHz} \\ & 36 \text{ dB}, \pm 9 \text{ kHz} \end{array}$ 

**Amplifier Section** 

**RMS Power** 

Both channels : 25 W per channel at 8 ohms

driven, from 20 Hz

to 20 kHz

RMS Power : 27 W per channel at 8 ohms

Total Harmonic : 0.03 % at rated power 20 Hz - 20 kHz

Distortion 8 ohms

0.004 % at rated power 1 kHz

8 ohms

Input Sensitivity/
Impedance

PHONO : 2.5 mV/47 kohms
TAPE PLAY 1, 2 : 120 mV/40 kohms
TAPE PLAY 1 : 120 mV/40 kohms

(DIN)

Tone Control

Bass : ±8 dB at 100 Hz Treble : ±8 dB at 10 kHz

Hum and Noise : (Weighted by IHF New IHF

(to rated input level) "A" network)

PHONO : 77 dB 75 dB AUX, TAPE PLAY: 97 dB 75 dB

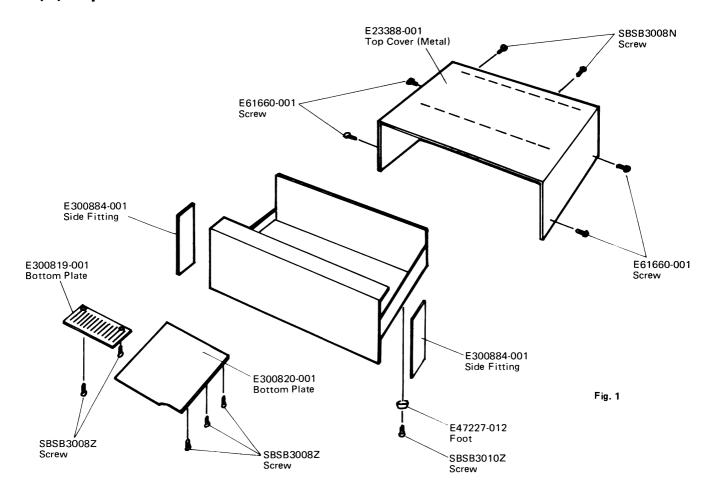
#### **Power Consumption**

	Line Voltage & Frequency	Power Consumption
Continental Europe	AC 220 V <sup>2</sup> , 50 Hz	310 W
U.K. & Australia	AC 240 V∿, 50 Hz	310 W

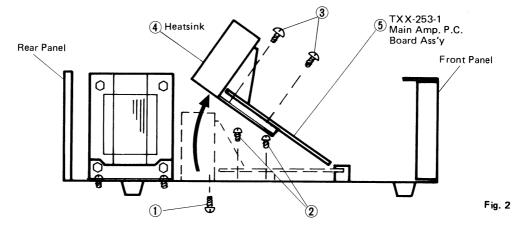
	Weight		
Height	Width	Depth	Net
11.9 cm	42.2 cm	34.5 cm	6.8 kg

## 2. Removal Procedures

## 2-(1) Top Cover and Bottom Plates



## 2-(2) Power Transistors



#### Procedures:

Step 1: Remove the bottom plate from chassis and 2 screws

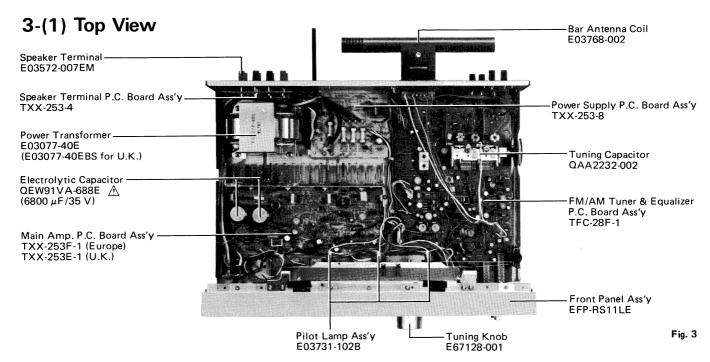
① from heatsink ④.

Step 2: Remove 4 screws 2 .

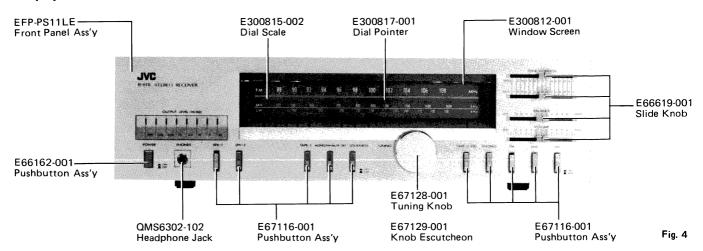
Step 3: Raise TXX-253-1 ⑤ from chassis as arrowed on Fig. 2 and then resolder the power transistor's leads.

Step 4: Remove 4 screws ③ and heatsink from TXX-253-1 and then replace the power transistors.

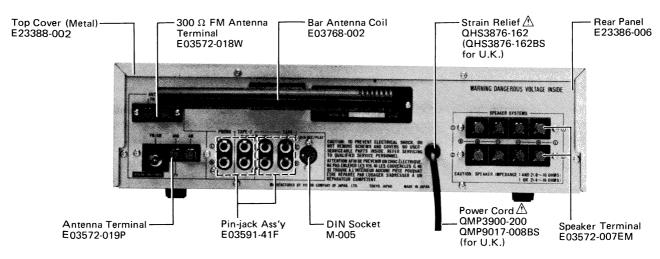
## 3. Main Parts Location



## 3-(2) Front View

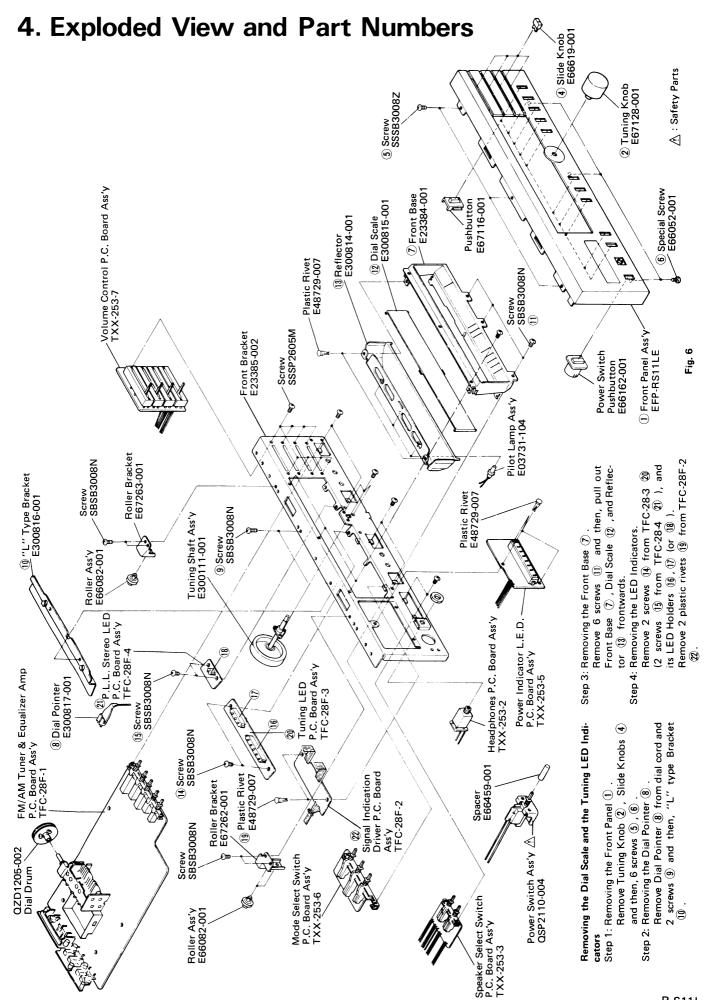


## 3-(3) Rear View

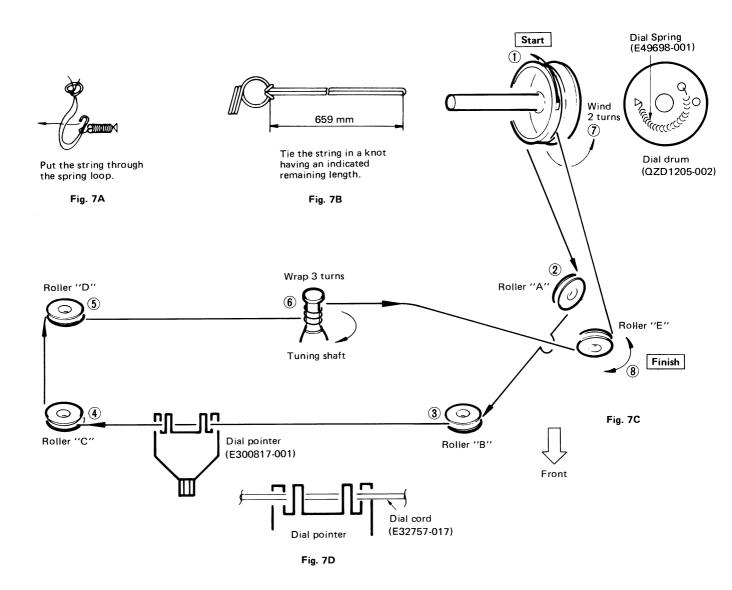


∴ : Safety Parts

Fig. 5



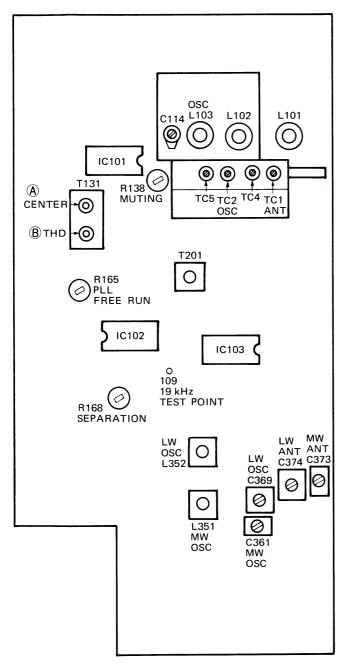
## 5. Dial Stringing Procedures



- (1) Remove dial pointer and old cord.
- (2) Tie end of new dial cord to one end of dial spring, connect other end of dial spring of bottom right eye inside dial drum.
- (3) Rotate the tuning capacitor dial drum to its maximum counterclockwise.
- (4) Run the dial cord through the slot in the rim of the dial drum. See step (1).
- (5) Guide the dial cord around, over and under rollers "A", "B", "C" and "D". Keep the dial cord taut during this procedure. See step ② to ⑤.
- (6) Pull the dial cord taut and wrap 3 turns counterclockwise around tuning shaft. See step (6).

- (7) Guide the dial cord over the dial drum and wind 2 turns clockwise. See step 7.
- (8) Pull the dial cord taut and set it around roller "E". See step (8).
- (9) Turn the tuning shaft to rotate the dial drum fully counterclockwise and fully clockwise to distribute the tensioning along the dial cord.
- (10) Place the dial cord over and under the tabs on the rear of the dial pointer and place the dial pointer on the top of the dial rail. See Fig. 7D.
- (11) Turn the tuning shaft clockwise. Slide the dial pointer to zero(0) calibration marker on the logging scale while holding tuning shaft fully clockwise. Cement the dial pointer to the dial cord to prevent slippage. Allow cement to dry thoroughly.

# 6. FM/MW/LW Tuner Alignment Procedures



Alignment Location on TFC-28F FM/AM Tuner P.C. Board Ass'y Fig. 8

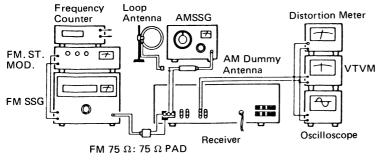


Fig. 9

### 6-(1) FM Section

#### Descriminator, Center Meter, Distortion and Signal Gain

- 1. Press to FM position.
- 2. Connect an RF generator, 1 kHz modulation and 75 kHz deviation, to the antenna terminals on the rear panel through a dummy antenna.
- 3. Connect an Oscilloscope, Distortion Meter and VTVM to the Rec. Out jacks on the rear panel.
- 4. Tune to a frequency where there is no broadcasting.
- 5. Adjust a core indicated arrow (A) of T131 so that the FM Tuning L.E.D. illuminates the center position.
- 6. Set the RF generator to 98 MHz.
- 7. Set the dial pointer to 98 MHz.
- 8. Adjust a core indicated arrow (B) of T131 so that the distortion is minimized at a value less than 0.4 %.

#### Tracking and Sensitivity

Precaution: No adjustment is necessary. The tracking and sensitivity have been adjusted properly and completely at the factory. If any special reason occasioned, take the following procedures carefully.

#### Low Frequency

- 1. Connect an RF generator the antenna terminals on the rear panel through a dummy antenna.
- 2. Set an RF generator to 88 MHz, a modulation of 1 kHz and a deviation of 75 kHz to provide an input of 2  $\mu$ V.
- 3. Connect a VTVM and an Oscilloscope to the Rec. Out jacks on the rear panel.
- 4. Set the dial pointer to 88 MHz.
- 5. Adjust the three coils L103, L102 and L101 in the tuning gang to maximize the output.

#### **High Frequency**

- 6. Set the RF generator to 108 MHz, a modulation of 1 kHz and a deviation of 75 kHz, to provide an input of  $2 \mu V$ .
- 7. Set the dial pointer to 108 MHz.
- 8. Adjust the FM trimmers C114, TC2 and TC1 in the tuning gang to maximize the output.
- 9. Repeat these high and low frequencies adjustment alternately until maximum sensitivity is obtained.

#### Multiplex and Stereo Separation Multiplex

- 1. Set the Stereo signal generator as follows: 400 Hz modulation frequency, 7.5 kHz deviation pilot, 67.5 kHz main and sub carriers. Connect its output to an RF generator.
- 2. Connect an RF generator to the antenna terminals through a dummy antenna.
- Connect a VTVM, an Oscilloscope and a Distortion Meter to the Rec. Out jacks on the rear panel.
- 4. Set the RF generator to 98 MHz and output of 1 mV.
- 5. Set the dial pointer to 98 MHz.
- 6. Connect the Frequency Counter to 19 kHz Test Point. (TP 109).
- 7. Switch off the pilot signal of Stereo Modulator.
- 8. Adjust R165 so that the frequency counter indicates 19 kHz (0~-50 Hz).

#### **Stereo Separation**

- Switch the selector of Stereo Modulator to left channel modulation.
- Adjust R168 so that the output of right channel is minimized.
- 11. Switch the selector of the modulator to right channel modulation
- 12. Adjust R168 so that the left channel is minimized.
- 13. Set R168 to a average, if the separation of left and right is different.

#### **Muting Level**

**Note:** No adjustment is necessary. However, if the checkup is required, take the following steps.

- 1. Release the MONO/FM MUTE OFF pushbutton during this adjustment procedures.
- 2. Connect a VTVM and an Oscilloscope to the Rec. Out jacks on the rear panel.
- 3. Set the RF generator to 108 MHz, a modulation of 1 kHz and a deviation of 75 kHz, to provide an input of 8  $\mu$ V.
- Turn R138 clockwise and remember the point (or position) at which the muting ceases operating.
- 5. Turn R138 counterclockwise slightly so that the output level drops by 1 dB.
- 6. Attenuate the output of the RF generator to 2 dB from 8  $\mu$ V of step 2 and check that the muting is still operating.

## 6-(2) MW(LW) Section

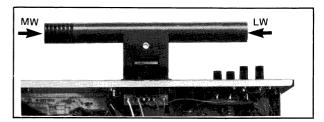
Note: ( ) for LW Alignment Procedures
Tracking and Sensitivity

#### Low Frequency

- Connect the RF generator to the antenna terminals on the rear panel, set this to 600 kHz (160 kHz) with 30 % modulation at 400 Hz.
- 2. Connect an AC VTVM and an oscilloscope to the Rec. out jacks on the rear panel.
- 3. Set the dial pointer to 600 kHz (160 kHz).
- 4. Adjust OSC coil L351 (L352) and the ferrite bar antenna core to maximize the output signal. Left ferrite bar is for MW (right ferrite bar is for LW). Refer to photo below.

#### **High Frequency**

- 5. Set the RF generator to 1400 kHz (350 kHz) with 30 % modulation at 400 Hz.
- 6. Set the dial pointer to 1400 kHz (350 kHz).
- 7. Adjust the trimmers C361 (C369) and C373 (C374) in the tuning gang so that the output signal is maximized.
- Repeat these high and low frequencies adjustment procedures alternately until maximum sensitivity is obtained.



# 7. Power Amplifier Idling Current Adjustment Procedure

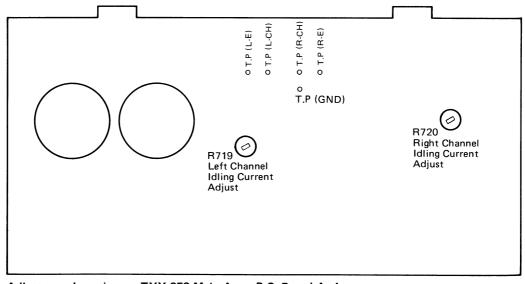


Fig. 10

Adjustment Location on TXX-253 Main Amp. P.C. Board Ass'y

#### Precaution:

- (1) Allow the set to warm up at least 5 minutes before connecting a DC VTVM.
- (2) Must keep the heatsinks cooling to prevent overheating and consequent destruction of the semiconductor junction and set the volume control to minimum during these adjustment procedures.
- ( ): for Right channel Adjustment

#### Procedures:

- 1. Turn R719 and (R720) fully counterclockwise before the power switch on.
- 2. Connect a DC VTVM to the Test Point L-CH and L-E (R-CH and R-E).
- 3. Adjust R719 (R720) for DC VTVM reading of 5 mV.

# 8. Printed Circuit Board Ass'y and Parts list

## 8-(1) TFC-28F FM/AM Tuner and Equalizer Amp. P.C. Board Ass'y

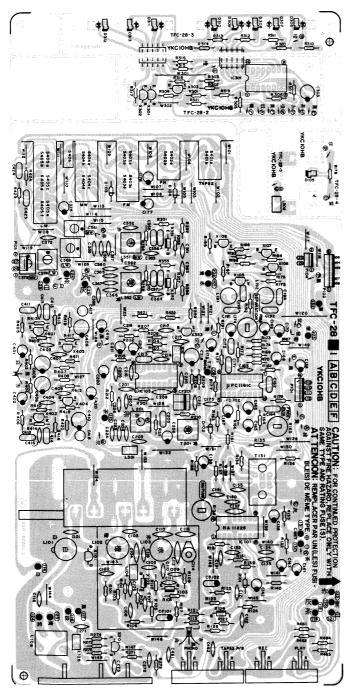


Fig. 11

#### Transistors

Item No.	Part Number	F	Rating		Description	
		Pc	fT		Maker	
X101	2SK168(E,F)	0.2 W		FET	Hitachi	
X102	2SC535(B,C)	0.1 W	940 MHz	Silicon	"	
X103	2SC1342(B,C)	"	410 MHz	"	"	
X104	2SC535(B,C)	"	940 MHz	"	"	
X105	2SC458(C)	0.2 W	230 MHz	"	"	
X106	2SC458(C)	"	"	"	"	
X107	2SC458(C)	"	"	"	"	
X108	2SA1029(C)	"	200 MHz	"	"	
X201	2SC461(C)	"	230 MHz	"	"	
X301	2SC458(C)	"	"	"	"	

## Each Individual P.C. Board Location

1 TFC-28F-1 : FM/AM Tuner & Equalizer

Amp. P.C. Board Ass'y ② TFC-28-2 : Signal Indicator Driver P.C.

Board Ass'y

: Signal indicator L.E.D. P.C. ③ TFC-28-3

Board Ass'y

**4** TFC-28-4 : PLL STEREO L.E.D. P.C.

Board Ass'y: Antenna Coil P.C. Board **5** TFC-28-5

**4**) **(5**)

1

Fig. 12

are actually unrelated to the repair service and are significant denotement in order to process the proper assembly at the factory.

#### **Transistors**

Item No	. Part Number	Rating		Rating Description	
		Pc	fT		Maker
X302	2SC458(C)	0.2 W	230 MHz	Silicon	Hitachi
X303	2SA1029(C)	"	200 MHz	"	"
X351	2SC461(B)	"	230 MHz	"	"
X352	2SC461(B)	"	"	"	"
X353	2SC458(C)	"	"	"	"
X401	2SA872AV(E)	0.3 W	120 MHz	"	"
X402	2SA872AV(E)	"	"	"	"
X403	2SC1775AV(F)	0.2 W	200 MHz	"	"
X404	2SC1775AV(F)	"	"	"	"

#### **Integrated Circuits**

Item No.	Part Number	Part Number Rating	Descr	iption
		Pc		Maker
IC101	HA11225	0.59 W	IC	Hitachi
IC102	UPC1161C		"	NEC
IC103	HA1197	0.45 W	"	Hitachi
IC301	IR2434	1.0 W	"	Sharp

#### **Diodes**

Item No.	Part Number	Rating	Description	
				Maker
D101	1S2076-31		Silicon	Hitachi
D102	1S2076-31		"	"
D103	1S2076-31		"	"
D104	1S2076-31		"	"
D308	SLB-26UR		LED	Toyo Dengu
D309	SLB-26UR		"	"
D310	SLB-26UR		"	"
D312	SLB-26UR		"	"
D306	SLB-26UR		"	"
D307	SLB-26UR		"	"
D311	SLB-26UR		"	"
D313	SLB-26GG		"	"

#### Coils & Transformers

Item No.	Part Number	Rating	Description
L101	E03477-031		FM ANT Coil
L102	E03477-035		FM RF Coil
L103	E03477-034		FM OSC Coil
L104	E03522-1R5KY		Choke Coil
L105	E03522-2R2KY		"
L106	E03177-005		BALUN
L191	Y00118-103		MPX 19 kHz Coil
L192	Y00118-103		"
L201	E03079-36		AM OSC Coil
L202	E03522-391KY		Choke Coil
L301	E03522-2R2KY		"
L302	E03522-2R2KY		"
L351	E03079-39		MW OSC Coil
L352	E03079-38		LW OSC Coil
T131	E03793-001		FM DET Coil
T201	E03613-017		AM IFT

#### Filters

Item No.	Part Number	Rating	Description
CF101	E03357-009		Ceramic Filter
CF102	E03357-009		"
CF201	E03613-019		"

#### Capacitors

Item No.	Part Number	Ratin	g	Description
C101	QCS31HJ-120Z	12 pF	50 V	Ceramic
C102	QCF31HP-103Z	0.01 μF	"	"
C103	QCS31HJ-150Z	15 pF	"	"
C104	QCS21HJ-3R0	3 pF	"	"
C105	QCS21HJ-2R0	2 pF	"	"
C106	QCS31HJ-151Z	160 pF	"	"
C107	QCF31HP-103Z	0.01 μF	"	"
C108	QCF31HP-103Z	"	"	"
C109	QCF21HP-103	"	"	"
C110	QCT25CH-100Z	10 pF	"	"
C111	QCT25CH-220Z	22 pF	"	"
C112	QCT05CH-7R0	7 pF	"	"
C113	QCT05PH-120	12 pF	"	"
C114	QAT3001-014			Trimmer
C115	QCT05RH-120	12 pF	50 V	Ceramic
C116	QCS31HJ-221Z	220 pF	"	"
C121	QCF31HP-223Z	0.022 μF	"	"
C122	QCF31HP-223Z	"	"	"
C131	QCF31HP-223Z	,,	"	"
C132	QCF31HP-223Z	"	"	"
C133	QCS31HJ-330Z	33 pF	"	"
C134	QCF31HP-223Z	0.022 μF	"	"
C135	QCF31HP-223Z	"	"	"
C136	QET61AR-107Z	100 μF	10 V	Electrolytic
C137	QCF21HP-223	0.022 μF	50 V	Ceramic
C138	QET61CR-476Z	47 μF	16 V	Electrolytic
C139	QET61HR-474Z	0.47 μF	50 V	"
l	QCF31HP-223Z	$0.022 \mu F$	"	Ceramic
1	QCF21HP-223	••	"	"
	QET61ER-106Z	10 μF	25 V	Electrolytic
1 1	QET61HR-474Z	0.47 μF	50 V	"
	QET61ER-106Z	10 μF	25 V	"
	QFM31HK-473	0.047 μF	50 V	Mylar
	QCS31HJ-101Z	100 pF	"	Ceramic
	QFP31HJ-471	470 pF	"	Polypropyrene
C165	QEB51EM-335	3.3 μF	25 V	Low Leak Current
				Electrolytic
	QEB51HM-105	1 μF	50 V	"
I I	QEB51HM-224	0.22 μF	"	"
C168	QET61CR-107Z	100 μF	16 V	Electrolytic

#### Capacitors

Capac				
	. Part Number	Ratio	ng	Description
C169	QET61ER-106Z		25 V	Electrolytic
C170 C171	QET61ER-106Z	1		
C171	QFM31HK-102Z QFM31HK-152Z			Mylar
C172	QFM31HK-102Z		- 1	,,
C172	QFM31HK-152Z			,,
C173	QET61HR-225Z		,,	Electrolytic
C174	QET51HR-225	Σ.Σ.μ.		"
C175	QCF31HP-223Z	0.022 μ	F "	Ceramic
C177	QET61HR-474Z	0.47 μF	"	Electrolytic
C178	QET61HR-474Z	I.	"	"
C191	QFM31HK-682Z		1	Mylar
C192	QFM31HK-682Z			",
C193 C194	QFM31HK-182Z QFM31HK-182Z		","	",
C201	QCF31HP-223Z		= ,,	
C201	QCT25UJ-150Z	0.022 μI 15 pF	-	Ceramic
C204	QCS31HJ-330Z	33 pF	,,	,,
C205	QFM31HK-103Z		,,	Mylar
C206	QET61ER-106Z	10 μF	25 V	Electrolytic
C207	QCF31HP-223Z	0.022 μ	50 V	Ceramic
C208	QCF21HP-223	"	"	"
C209	QCF31HP-223Z	"	"	"
C210	QCF31HP-223Z	."_	<i>"</i>	
C211	QET61HR-105Z	1 μF	"	Electrolytic
C212	QET61ER-106Z	10 μF	25 V	"
C213 C214	QFM31HK-102Z QCF31HP-223Z	1000 pF	50 V	Mylar
C214	QCS31HJ-331Z	0.022 μF 330 pF	,,	"
C216	QCF31HP-103Z	0.1 μF	,,	"
C217	QCF31HP-223Z	0.022 μF	"	11
C218	QET61CR-476Z	47 μF	16 V	Electrolytic
C220	QET61ER-106Z	10 μF	25 V	"
C221	QCS31HJ-560Z	56 pF	50 V	Ceramic
C223	QCT26CH-151	150 pF	"	"
C224 C225	QCT26CH-151	İ	\\ ''	"
C225	QCS31HJ-470Z QCS31HJ-330Z	47 pF 33 pF	,,	,,
C271	QCF31HP-473Z	0.047 μF	"	,,
C272	QCF31HP-473Z	","	"	"
C273	QCF31HP-223Z	0.022 μF	"	"
C303	QET61CR-107Z	100 μF	16 V	Electrolytic
C303	QET61HR-105Z	1 μF	50 V	"
C304	QET61CR-107Z	100 μF	16 V	
C351 C352	QCF31HP-473Z	0.047 μF	50 V	Ceramic
C352 C353	QCF31HP-473Z QCS31HJ-100Z	" 10 pE	"	"
C355	QFM31HK-103Z	10 pF 0.01 μF		Mylar
C356	QFM31HK-153Z	0.01 μF	,,	wiyiai "
C357	QCT25PH-151Z	150 pF		Ceramic
C358	QCT25PH-151Z	· · ·	"	"
C359	QCS31HJ-330Z	33 pF	"	"
C360	QCT25UJ-100Z	10 pF	"	"
C361	QAT20001-001	0.04= :		Trimmer
C362	QCF31HP-473Z	0.047 μF	50 V	Ceramic
C363	QCF31HP-473Z	" 50 5		"
C364 C365	QCS31HJ-560Z QCT25UJ-270Z	56 pF	"	"
C366	QCT25CH-680Z	27 pF 68 pF	,,	"
C367	QCT25CH-680Z	06 pr		,,
C368	QCT25CH-220Z	22 pF	,,	,,
	QAT2001-005	Pi		Trimmer
ı		0.022 μF	50 V	Mylar
		0.033 μF	"	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	QCS31HJ-180Z	18 pF	"	Ceramic
1	QAT2001-005			Trimmer
	QAT2001-001			
		0.47 μF	50 V	Electrolytic
	QET61HR-475Z   QET61HR-475Z	4.7 μF		",
3702	4-101111N-4/5Z			

#### Capacitors

Capaci	Capacitors					
Item No.	Part Number	Rating		Description		
C403	QCS31HJ-471Z	470 pF	50 V	Ceramic		
C404	QCS31HJ-471Z	"	"	"		
C405	QET60JR-227Z	220 μF	6.3 V	Electrolytic		
C406	QET60JR-227Z	"	"	"		
C407	QCS31HJ-470Z	47 pF	50 V	Ceramic		
C408	QCS31HJ-470Z	"	"	"		
C409	QET60JR-227Z	220 μF	6.3 V	Electrolytic		
C410	QET60JR-227Z	"	"	"		
C411	QFM31HK-153Z	0.015 μF	50 V	Mylar		
C412	QFM31HK-153Z	"	"	"		
C413	QFM31HK-472Z	4700 pF	"	"		
C414	QFM31HK-472Z	"	"	"		
C415	QCS31HJ-471Z	470 pF	"	Ceramic		
C416	QCS31HJ-471Z	"	"	"		
C417	QEZ0046-105	1 μF	"	Electrolytic		
C418	QEZ0046-105	"	"	"		
C419	QET61ER-476Z	47 μF	25 V	"		
C420	QET61ER-476Z	"	''	"		
C423	QFM31HK-153Z	0.015 μF	50 V	Mylar		
C424	QFM31HK-153Z	"	"	"		
C461	QCF31HP-223Z	0.022 μF	"	Ceramic		
C462	QCF31HP-473Z	0.047 μF	"	"		

#### Resistors

$\begin{array}{cccccccccccccccccccccccccccccccccccc$	<u> </u>
R102       QRD141J-472SY       4.7 kΩ       "       "         R103       QRD141J-223SY       22 kΩ       "       "         R104       QRD141J-102SY       1 kΩ       "       "         R105       QRD141J-101SY       100 Ω       "       "         R106       QRD141J-561SY       560 Ω       "       "         R107       QRD141J-22SY       2.2 kΩ       "       "         R108       QRD141J-103SY       10 kΩ       "       "         R109       QRD141J-682SY       6.8 kΩ       "       "       "         R110       QRD141J-272SY       2.7 kΩ       "       "       "         R113       QRD141J-272SY       2.7 kΩ       "       "       "         R121       QRD141J-221SY       220 Ω       "       "       "         R122       QRD141J-103SY       10 kΩ       "       "       "         R123       QRD141J-31SY       100 Ω       "       "       "         R124       QRD141J-331SY       330 Ω       "       "       "         R135       QRD141J-332SY       33 kΩ       "       "       "         R133       QRD141J-33	<u></u>
R103       QRD141J-223SY       22 kΩ       "       "         R104       QRD141J-102SY       1 kΩ       "       "         R105       QRD141J-101SY       100 Ω       "       "         R106       QRD141J-561SY       560 Ω       "       "         R107       QRD141J-222SY       2.2 kΩ       "       "         R108       QRD141J-103SY       10 kΩ       "       "         R109       QRD141J-682SY       6.8 kΩ       "       "         R110       QRD141J-272SY       2.7 kΩ       "       "         R121       QRD141J-221SY       220 Ω       "       "         R121       QRD141J-273SY       27 kΩ       "       "         R122       QRD141J-273SY       27 kΩ       "       "         R123       QRD141J-31SY       10 kΩ       "       "         R124       QRD141J-331SY       330 Ω       "       "         R131       QRD141J-331SY       330 Ω       "       "         R132       QRD141J-332SY       3.3 kΩ       "       "         R133       QRD14J-473SY       12 kΩ       "       "         R134       QRD14J-472SY	<u></u>
R104       QRD141J-102SY       1 kΩ       "       "         R105       QRD141J-101SY       100 Ω       "       "         R106       QRD141J-561SY       560 Ω       "       "         R107       QRD141J-222SY       2.2 kΩ       "       "         R108       QRD141J-103SY       10 kΩ       "       "         R109       QRD141J-682SY       6.8 kΩ       "       "         R110       QRD141J-272SY       2.7 kΩ       "       "         R113       QRD141J-272SY       2.7 kΩ       "       "         R121       QRD141J-221SY       220 Ω       "       "         R122       QRD141J-273SY       27 kΩ       "       "         R123       QRD141J-101SY       100 Ω       "       "         R124       QRD141J-31SY       100 Ω       "       "         R125       QRD141J-331SY       330 Ω       "       "         R131       QRD141J-331SY       390 Ω       "       "         R132       QRD141J-323SY       12 kΩ       "       "         R133       QRD14J-470S       47 Ω       "       "         R134       QRD14J-472SY <t< td=""><td><u></u></td></t<>	<u></u>
R105         QRD141J-101SY         100 $\Omega$ "         "           R106         QRD141J-561SY         560 $\Omega$ "         "           R107         QRD141J-222SY         2.2 kΩ         "         "           R108         QRD141J-103SY         10 kΩ         "         "           R109         QRD141J-682SY         6.8 kΩ         "         "           R110         QRD141J-272SY         2.7 kΩ         "         "           R113         QRD144J-220S         22 Ω         "         "           R121         QRD141J-221SY         220 Ω         "         "           R122         QRD141J-273SY         27 kΩ         "         "           R123         QRD141J-471SY         470 Ω         "         "           R124         QRD141J-331SY         330 Ω         "         "           R125         QRD141J-331SY         390 Ω         "         "           R131         QRD141J-331SY         390 Ω         "         "           R132         QRD141J-271SY         270 Ω         "         "           R133         QRD14J-473SY         47 Ω         "         "           R134         Q	<u></u>
R106         QRD141J-561SY $$ 560 $$ Ω         " " " " " " " " " " " " " " " " " " "	<u> </u>
R106 QRD141J-301SY 300 $\Omega$ " " R108 QRD141J-103SY 10 kΩ " " " R109 QRD141J-682SY 6.8 kΩ " " " R110 QRD141J-272SY 2.7 kΩ " " " R113 QRD141J-221SY 220 $\Omega$ " " " " R121 QRD141J-273SY 27 kΩ " " " R122 QRD141J-273SY 27 kΩ " " " R123 QRD141J-103SY 10 kΩ " " " R124 QRD141J-471SY 470 $\Omega$ " " " R125 QRD141J-331SY 330 $\Omega$ " " " R131 QRD141J-331SY 330 $\Omega$ " " " R131 QRD141J-331SY 330 $\Omega$ " " " R132 QRD141J-331SY 330 $\Omega$ " " " R131 QRD141J-331SY 330 $\Omega$ " " " R131 QRD141J-331SY 340 $\Omega$ " " " R132 QRD141J-271SY 270 $\Omega$ " " " R133 QRD141J-271SY 270 $\Omega$ " " " R136 QRD141J-332SY 12 k $\Omega$ " " " R137 QRD141J-332SY 47 k $\Omega$ " " " R136 QRD141J-470SY 4.7 k $\Omega$ " " " R137 QRD141J-823SY 82 k $\Omega$ " " " R138 QVP4AOB-223 22 k $\Omega$ Variable R139 QRD141J-473SY 47 k $\Omega$ " " " R139 QRD141J-123SY 12 k $\Omega$ " " " R139 QRD141J-473SY 47 k $\Omega$ " " " R140 QRD141J-123SY 12 k $\Omega$ " " " " " " " " " " " " " " " " " " "	<u>^</u>
R107       QRD141J-103SY $10  k\Omega$ "       "         R109       QRD141J-682SY $6.8  k\Omega$ "       "         R110       QRD144J-272SY $2.7  k\Omega$ "       "         R113       QRD149J-220S $22  \Omega$ "       "         R121       QRD141J-221SY $220  \Omega$ "       "         R122       QRD141J-273SY $27  k\Omega$ "       "         R123       QRD141J-103SY $10  k\Omega$ "       "         R124       QRD141J-471SY $470  \Omega$ "       "         R125       QRD141J-331SY $330  \Omega$ "       "         R131       QRD141J-391SY $390  \Omega$ "       "         R132       QRD141J-271SY $270  \Omega$ "       "         R133       QRD141J-323SY $12  k\Omega$ "       "         R134       QRD141J-323SY $33  k\Omega$ "       "         R135       QRD14J-470S $47  \Omega$ "       "         R136       QRD141J-823SY $82  k\Omega$ "       "         R138       QVP4AOB-223 $22  k\Omega$ Variable	<u>^</u>
R109       QRD141J-682SY       6.8 kΩ       "       "         R110       QRD141J-682SY       6.8 kΩ       "       "         R113       QRD149J-220S       22 Ω       "       "         R121       QRD141J-221SY       220 Ω       "       "         R122       QRD141J-273SY       27 kΩ       "       "         R123       QRD141J-103SY       10 kΩ       "       "         R124       QRD141J-471SY       470 Ω       "       "         R125       QRD141J-101SY       100 Ω       "       "         R131       QRD141J-331SY       330 Ω       "       "         R132       QRD141J-331SY       390 Ω       "       "         R133       QRD141J-271SY       270 Ω       "       "         R133       QRD141J-323SY       12 kΩ       "       "         R136       QRD141J-472SY       47 κΩ       "       "         R136       QRD141J-823SY       82 kΩ       "       "         R138       QVP4AOB-223       22 kΩ       Variable         R139       QRD141J-473SY       47 kΩ       1/4 W       Carbon         R140       QRD141J-103SY <td< td=""><td><u> </u></td></td<>	<u> </u>
R109       QRD141J-82SY       6.8 kΩ         R110       QRD141J-272SY       2.7 kΩ       "         R113       QRD149J-220S       22 Ω       "       "         R121       QRD141J-273SY       27 kΩ       "       "         R122       QRD141J-273SY       27 kΩ       "       "         R123       QRD141J-103SY       10 kΩ       "       "         R124       QRD141J-471SY       470 Ω       "       "         R125       QRD141J-331SY       330 Ω       "       "         R131       QRD141J-331SY       390 Ω       "       "         R132       QRD141J-271SY       270 Ω       "       "         R133       QRD141J-123SY       12 kΩ       "       "         R134       QRD141J-332SY       3.3 kΩ       "       "       "         R135       QRD14J-470S       47 Ω       "       "       "         R136       QRD141J-823SY       82 kΩ       "       "       "         R138       QVP4AOB-223       22 kΩ       Variable         R139       QRD141J-473SY       47 kΩ       1/4 W       Carbon         R140       QRD141J-103SY       10	<u> </u>
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	<u></u>
R113	<u></u>
R121 QRD141J-221SY 27 kΩ " " R122 QRD141J-473SY 10 kΩ " " " R124 QRD141J-471SY 470 Ω " " " R125 QRD141J-331SY 330 Ω " " " R131 QRD141J-331SY 390 Ω " " " R132 QRD141J-321SY 270 Ω " " " R133 QRD141J-271SY 270 Ω " " " R134 QRD141J-332SY 12 kΩ " " " R135 QRD141J-473SY 47 Ω " " R136 QRD141J-473SY 47 $\Omega$ " " " " " " " " " " " " " " " " " " "	
R122 QRD141J-273SY 27 kΩ R123 QRD141J-103SY 10 kΩ " " " R124 QRD141J-471SY 470 Ω " " " " R125 QRD141J-101SY 100 Ω " " " R126 QRD141J-331SY 330 Ω " " " R131 QRD141J-331SY 390 Ω " " " " R132 QRD141J-271SY 270 Ω " " " R133 QRD141J-123SY 12 kΩ " " " R134 QRD141J-332SY 3.3 kΩ " " " R135 QRD141J-470S 47 Ω " " " R136 QRD141J-470SY 4.7 kΩ " " " R137 QRD141J-823SY 82 kΩ " " " R138 QVP4AOB-223 22 kΩ Variable R139 QRD141J-473SY 47 kΩ 1/4 W Carbon R140 QRD141J-123SY 12 kΩ " " R141 QRD141J-103SY 10 kΩ " " "	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
R124       QRD141J-4/1SY       470 $\Omega$ "         R125       QRD141J-101SY $100 \Omega$ "       "         R126       QRD141J-331SY $330 \Omega$ "       "         R131       QRD141J-391SY $390 \Omega$ "       "         R132       QRD141J-271SY $270 \Omega$ "       "         R133       QRD141J-32SY $12 k\Omega$ "       "         R134       QRD141J-32SY $3.3 k\Omega$ "       "         R135       QRD149J-470S $47 \Omega$ "       "         R136       QRD141J-472SY $4.7 k\Omega$ "       "         R137       QRD141J-823SY $82 k\Omega$ "       "         R138       QVP4AOB-223 $22 k\Omega$ Variable         R139       QRD141J-473SY $47 k\Omega$ $1/4 W$ Carbon         R140       QRD141J-103SY $12 k\Omega$ "       "         R141       QRD141J-103SY $10 k\Omega$ "       "	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
R131       QRD141J-391SY       390 Ω         R132       QRD141J-271SY       270 Ω       "         R133       QRD141J-123SY       12 kΩ       "       "         R134       QRD141J-332SY       3.3 kΩ       "       "       "         R135       QRD149J-470S       47 kΩ       "       "       "         R136       QRD141J-472SY       4.7 kΩ       "       "       "         R137       QRD141J-823SY       82 kΩ       "       "       "         R138       QVP4AOB-223       22 kΩ       Variable         R139       QRD141J-473SY       47 kΩ       1/4 W       Carbon         R140       QRD141J-123SY       12 kΩ       "       "         R141       QRD141J-103SY       10 kΩ       "       "	
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$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
R136   QRD141J-472SY   4.7 kΩ   "   "   "	Δ
R137       QRD141J-823SY       82 kΩ       "       "       Variable         R138       QVP4AOB-223       22 kΩ       Variable         R139       QRD141J-473SY       47 kΩ       1/4 W       Carbon         R140       QRD141J-123SY       12 kΩ       "       "         R141       QRD141J-103SY       10 kΩ       "       "	
R138         QVP4AOB-223         22 kΩ         Variable           R139         QRD141J-473SY         47 kΩ         1/4 W         Carbon           R140         QRD141J-123SY         12 kΩ         "         "           R141         QRD141J-103SY         10 kΩ         "         "	
R139 QRD141J-473SY 47 kΩ 1/4 W Carbon R140 QRD141J-123SY 12 kΩ " " R141 QRD141J-103SY 10 kΩ " "	
R140 QRD141J-123SY 12 kΩ " " R141 QRD141J-103SY 10 kΩ " "	
R141 QRD141J-103SY 10 kΩ " "	
11111	
R161 QRD141J-363SY 36 k $\Omega$ " " "	
R162 QRD141J-393S 39 kΩ " "	
The state of the s	
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H167 URD149J-3305 33 12	<u> </u>
R168 QRD141J-222SY 470 kΩ Variable	
R169 QRD141J-223SY 22 kΩ 1/4 W Carbon	
R170 QRD141J-223SY "	
H1/1 QRD1413-51351 51 K12	
R172 QRD141J-513SY " " "	
R173 QRD141J-103SY 10 kΩ " "	
R174 QRD141J-103SY " " "	
R175 QRD141J-332SY 3.3 kΩ " "	
R176 QRD141J-332SY " " "	
R177 QRD141J-102SY 1 kΩ " "	

#### Resistors

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R179					
R191         QRD141J-332SY         3.3 kΩ         "		1			
R192         QRD141J-104SY         "				"	"
R194       QRD141J-393SY   39 kΩ       "         R195       QRD141J-223SY   10 kΩ       "         R196       QRD141J-223SY   10 kΩ       "         R197       QRD141J-223SY   "       "         R201       QRD141J-162SY   1.5 kΩ       "         R202       QRD141J-162SY   1.5 kΩ       "         R203       QRD141J-103SY   0 kΩ       "         R204       QRD141J-162SY   5.6 kΩ       "         R205       QRD141J-56SY   5.6 kΩ       "         R206       QRD141J-161SY   150 Ω       "         R207       QRD141J-161SY   150 Ω       "         R208       QRD141J-161SY   150 Ω       "         R209       QRD141J-161SY   150 Ω       "         R210       QRD141J-161SY   150 Ω       "         R211       QRD141J-161SY   150 Ω       "         R212       QRD141J-161SY   150 Ω       "         R211       QRD141J-22SY   22 kΩ       "         R271       QRD141J-361SY   560 Ω       "         R272       QRD141J-331SY   330 Ω       "         R273       QRD141J-361SY   560 Ω       "         R274       QRD141J-102SY   15 kΩ       "         R303       QRD141J-102SY   15 kΩ       "				"	"
R195       QRD14IJ-223SY       10 kΩ       "         R196       QRD14IJ-223SY       20 kΩ       "         R197       QRD14IJ-162SY       1.5 kΩ       "         R201       QRD14IJ-103SY       "       "         R202       QRD14IJ-103SY       10 kΩ       "         R203       QRD14IJ-33ISY       30 Ω       "         R204       QRD14IJ-33ISY       100 kΩ       "         R205       QRD14IJ-562SY       5.6 kΩ       "         R206       QRD14IJ-161SY       100 kΩ       "         R207       QRD14IJ-151SY       150 Ω       "         R208       QRD14IJ-151SY       150 Ω       "         R209       QRD14IJ-161SY       150 Ω       "         R209       QRD14IJ-151SY       150 Ω       "         R210       QRD14IJ-161SY       150 Ω       "         R211       QRD14IJ-163SY       150 Ω       "         R212       QRD14IJ-163SY       150 Ω       "         R272       QRD14IJ-33ISY       150 Ω       "         R272       QRD14IJ-33SY       15 kΩ       "         R273       QRD14IJ-34SY       150 kΩ       "         R3	R193	QRD141J-104SY	100 kΩ	"	"
R196       QRD141J-223SY       "       "         R197       QRD141J-223SY       "       "         R198       QRD141J-223SY       "       "         R201       QRD141J-103SY       "       "         R202       QRD141J-103SY       "       "         R203       QRD141J-331SY       330 Ω       "       "         R204       QRD141J-362SY       5.6 kΩ       "       "         R205       QRD141J-104SY       100 kΩ       "       "         R206       QRD141J-16SY       150 Ω       "       "         R207       QRD141J-15ISY       150 Ω       "       "         R209       QRD141J-16SY       150 Ω       "       "         R210       QRD141J-22ISY       220 Ω       "       "         R211       QRD141J-15ISY       150 Ω       "       "         R211       QRD141J-16SY       150 Ω       "       "         R211       QRD141J-31SY       150 Ω       "       "         R271       QRD141J-33SY       35 Ω       "       "         R272       QRD141J-33SY       35 Ω       "       "         R273       QRD141J-33SY </td <td>R194</td> <td>QRD141J-393SY</td> <td>39 kΩ</td> <td>"</td> <td>"</td>	R194	QRD141J-393SY	39 kΩ	"	"
R197   GRD141J-223SY   " " "   "   "   "   R198   GRD141J-223SY   " " " "   "   "   "   "     R201   GRD141J-103SY   10 kΩ   "   "   "       R202   GRD141J-103SY   10 kΩ   "   "	R195	QRD141J-223SY	10 kΩ		
R198       QRD14IJ-223SY       "       "         R201       QRD14IJ-162SY       1.5 kΩ       "       "         R202       QRD14IJ-103SY       "       "       "         R204       QRD14IJ-36SYY       5.6 kΩ       "       "         R205       QRD14IJ-56SYY       5.6 kΩ       "       "         R206       QRD14IJ-16SYY       100 kΩ       "       "         R207       QRD14IJ-16SYY       100 kΩ       "       "         R208       QRD14IJ-16SYY       100 kΩ       "       "         R209       QRD14IJ-22SYY       2.2 kΩ       "       "         R209       QRD14IJ-21SYY       150 Ω       "       "         R210       QRD14IJ-56SYY       560 Ω       "       "         R211       QRD14IJ-56SYY       560 Ω       "       "         R271       QRD14IJ-33SYY       330 Ω       "       "         R272       QRD14IJ-33SYY       330 Ω       "       "         R274       QRD14IJ-6SSYY       56 kΩ       "       "         R301       QRD14IJ-6SSYY       56 kΩ       "       "         R303       QRD14IJ-6SSY       56 kΩ					
R201	_				
R201   GRD14IJ-103SY   10 kΩ   "   "   "   R203   GRD14IJ-103SY   "   "   "   "   "   "   R204   GRD14IJ-33ISY   30 ω   "   "   "   "   R205   GRD14IJ-103SY   5.6 kΩ   "   "   "     R206   GRD14IJ-22SY   2.2 kΩ   "   "   "   R207   GRD14IJ-16SY   150 Ω   "   "     R209   GRD14IJ-16ISY   150 Ω   "   "       R209   GRD14IJ-16ISY   150 Ω   "   "         R209   GRD14IJ-16ISY   150 Ω   "   "					
R203   QRD141J-1035Y   R204   QRD141J-3015Y   R205   QRD141J-362SY   5.6 kΩ   "   "   R206   QRD141J-22SY   2.2 kΩ   "   "   R207   QRD141J-151SY   150 Ω   "   "   R208   QRD141J-151SY   R210   QRD141J-151SY   R210   QRD141J-151SY   R211   QRD141J-151SY   R211   QRD141J-151SY   150 Ω   "   "   R211   QRD141J-151SY   150 Ω   "   "   R212   QRD141J-151SY   150 Ω   "   "   R211   QRD141J-151SY   150 Ω   "   "   R212   QRD141J-151SY   150 Ω   "   "   R212   QRD141J-151SY   150 Ω   "   "   R212   QRD141J-151SY   150 Ω   "   "   R213   QRD141J-151SY   150 Ω   "   "   "   R214   QRD141J-122SY   2.2 kΩ   "   "   "     R273   QRD141J-331SY   330 Ω   "   "   "   R274   QRD141J-182SY   15 kΩ   "   "     R275   QRD141J-331SY   330 Ω   "   "     R274   QRD141J-1683SY   56 kΩ   "   "     R301   QRD141J-1683SY   56 kΩ   "   "       R304   QRD141J-103SY   10 kΩ   "   "					
R204   QRD141J-331SY   R205   QRD141J-362SY   S.6 kΩ   "   "   "   R206   QRD141J-104SY   150 Ω   "   "   R208   QRD141J-151SY   150 Ω   "   "   R209   QRD141J-151SY   150 Ω   "   "   "   R210   QRD141J-151SY   150 Ω   "   "   "   R211   QRD141J-151SY   150 Ω   "   "   "   R212   QRD141J-151SY   150 Ω   "   "   "   R212   QRD141J-151SY   150 Ω   "   "   "   R213   QRD141J-151SY   150 Ω   "   "   "   R271   QRD141J-104SY   150 Ω   "   "   "   R272   QRD141J-182SY   1.8 kΩ   "   "   "   R273   QRD141J-331SY   330 Ω   "   "   "   R274   QRD141J-82SY   1.8 kΩ   "   "   "   R275   QRD141J-83SY   68 kΩ   "   "   "   R302   QRD141J-563SY   56 kΩ   "   "   R302   QRD141J-563SY   150 kΩ   "   "   R304   QRD141J-103SY   100 kΩ   "   "   "   R305   QRD141J-333SY   300 kΩ   "   "   "   R306   QRD141J-333SY   300 kΩ   "   "   "   "   R311   QRD141J-102SY   1 kΩ   "   "   "   R312   QRD141J-102SY   1 kΩ   "   "   "   R313   QRD141J-102SY   "   "   "   "   "   R314   QRD141J-102SY   "   "   "   "   "   "   R315   QRD141J-102SY   "   "   "   "   "   "   R316   QRD141J-102SY   "   "   "   "   "   "   R317   QRD141J-102SY   "   "   "   "   "   "   "   R318   QRD141J-102SY   "   "   "   "   "   "   "     R318   QRD141J-102SY   "   "   "   "   "   "     R319   QRD141J-102SY   "   "   "   "   "   "     R316   QRD141J-102SY   "   "   "   "   "   "     R317   QRD141J-102SY   "   "   "   "   "   "     "       R318   QRD141J-102SY   "   "   "   "   "   "     "					
R205       QRD141J-22SY       2.6 kΩ       "       "         R206       QRD141J-104SY       100 kΩ       "       "       R208       QRD141J-151SY       "       "       "       "       R208       QRD141J-151SY       150 Ω       "					,,
R206   QRD141J-222SY   2.2 kΩ   "   "   R208   QRD141J-161SY   150 Ω   "   "   R209   QRD141J-151SY   560 Ω   "   "   R210   QRD141J-561SY   560 Ω   "   "   R211   QRD141J-561SY   560 Ω   "   "   R211   QRD141J-151SY   150 Ω   "   "   R211   QRD141J-151SY   150 Ω   "   "   R212   QRD141J-151SY   150 Ω   "   "   R213   QRD141J-151SY   150 Ω   "   "   R274   QRD141J-122SY   2.2 kΩ   "   "   "   R275   QRD141J-331SY   330 Ω   "   "   "   R276   QRD141J-331SY   330 Ω   "   "   R277   QRD141J-182SY   15 kΩ   "   "   R301   QRD141J-163SY   15 kΩ   "   "   R302   QRD141J-163SY   150 kΩ   "   "   R304   QRD141J-103SY   10 kΩ   "   "   R305   QRD141J-333SY   30 kΩ   "   "   "   R306   QRD141J-102SY   1 kΩ   "   "   R310   QRD141J-102SY   1 kΩ   "   "   "   R311   QRD141J-102SY   1 kΩ   "   "   "   R312   QRD141J-102SY   "   "   "   "   R313   QRD141J-102SY   "   "   "   "   "   R314   QRD141J-102SY   "   "   "   "   "   R315   QRD141J-102SY   "   "   "   "   "   R316   QRD141J-102SY   "   "   "   "   "   R317   QRD141J-102SY   "   "   "   "   "   R318   QRD141J-102SY   "   "   "   "   "   "   R318   QRD141J-102SY   "   "   "   "   "   "   "   R318   QRD141J-102SY   "   "   "   "   "   "   "   R318   QRD141J-102SY   "   "   "   "   "   "   "   R318   QRD141J-102SY   "   "   "   "   "   "   "   R318   QRD141J-122SY   2.2 kΩ   "   "   "   "   "   R353   QRD141J-122SY   2.2 kΩ   "   "   "   "   R353   QRD141J-363SY   39 kΩ   "   "   "   "   R355   QRD141J-363SY   39 kΩ   "   "   "   "   "   R358   QRD141J-863SY   56 kΩ   "   "   "   "   "     R358   QRD141J-22SSY   2.2 kΩ   "   "   "   "   "     R358   QRD141J-363SY   39 kΩ   "   "   "   "     "				"	"
R207       QRD141J-151SY       """"""""""""""""""""""""""""""""""""				••	"
R209   QRD141J-151SY			-	"	"
R210   QRD14IJ-151SY   R211   QRD14IJ-151SY   150 Ω   "   "   "   R212   QRD14IJ-151SY   150 Ω   "   "   "   R212   QRD14IJ-161SY   150 Ω   "   "   "   R211   QRD14IJ-104SY   100 kΩ   "   "   "   R272   QRD14IJ-22SY   330 Ω   "   "   "   R273   QRD14IJ-182SY   1.8 kΩ   "   "   R274   QRD14IJ-183SY   1.8 kΩ   "   "   R275   QRD14IJ-163SY   15 kΩ   "   "   R276   QRD14IJ-163SY   15 kΩ   "   "   R276   QRD14IJ-163SY   15 kΩ   "   "   R301   QRD14IJ-163SY   15 kΩ   "   "   "   R302   QRD14IJ-163SY   15 kΩ   "   "   "   R303   QRD14IJ-163SY   15 kΩ   "   "   "   R306   QRD14IJ-103SY   10 kΩ   "   "   "   R306   QRD14IJ-102SY   1 kΩ   "   "   "   R307   QRD14IJ-102SY   1 kΩ   "   "   "   R311   QRD14IJ-102SY   1 kΩ   "   "   "   R312   QRD14IJ-102SY   "   "   "   "   R313   QRD14IJ-102SY   "   "   "   "   R314   QRD14IJ-102SY   "   "   "   "   R315   QRD14IJ-102SY   "   "   "   "   R316   QRD14IJ-102SY   "   "   "   "   R317   QRD14IJ-102SY   "   "   "   "   R318   QRD14IJ-102SY   "   "   "   "   R318   QRD14IJ-102SY   "   "   "   "   R319   QRD14IJ-393SY   39 kΩ   "   "   "   R350   QRD14IJ-393SY   39 kΩ   "   "   "   R351   QRD14IJ-82SY   8.2 kΩ   "   "   "   R351   QRD14IJ-82SY   8.2 kΩ   "   "   "   R351   QRD14IJ-82SY   8.2 kΩ   "   "   "   R353   QRD14IJ-82SY   8.2 kΩ   "   "   "   R354   QRD14IJ-82SY   8.2 kΩ   "   "   "   R355   QRD14IJ-82SY   8.2 kΩ   "   "   "   R356   QRD14IJ-82SY   8.2 kΩ   "   "   "   R356   QRD14IJ-82SY   8.2 kΩ   "   "   "   R356   QRD14IJ-82SY   8.2 kΩ   "   "   "     R356   QRD14IJ-82SY   8.2 kΩ   "   "   "       R356   QRD14IJ-82SY   8.2 kΩ   "   "   "	R208	QRD141J-151SY	150 Ω		
R211 QRD14IJ-22ISY 20 % " R212 QRD14IJ-15ISY 150 Ω " R271 QRD14IJ-15ISY 100 kΩ " R272 QRD14IJ-33ISY 330 Ω " R274 QRD14IJ-33ISY 330 Ω " R275 QRD14IJ-33ISY 15 kΩ " R301 QRD14IJ-163SY 15 kΩ " R302 QRD14IJ-563SY 56 kΩ " R303 QRD14IJ-154SY 150 kΩ " R304 QRD14IJ-103SY 10 kΩ " R305 QRD14IJ-333SY 33 kΩ " R306 QRD14IJ-102SY 1 kΩ " R307 QRD14IJ-102SY 1 kΩ " R310 QRD14IJ-102SY 1 kΩ " R311 QRD14IJ-102SY " " R312 QRD14IJ-102SY " " " R312 QRD14IJ-102SY " " " R313 QRD14IJ-102SY " " " R314 QRD14IJ-102SY " " " R315 QRD14IJ-102SY " " " R316 QRD14IJ-102SY " " " R317 QRD14IJ-882SY 68 kΩ " " R318 QRD14IJ-882SY 68 kΩ " " R319 QRD14IJ-82SY " " " " R319 QRD14IJ-82SY " " " " R319 QRD14IJ-82SY " " " " R351 QRD14IJ-82SY " " " " R351 QRD14IJ-82SY " " " " " R352 QRD14IJ-82SY " " " " " " R353 QRD14IJ-82SY " " " " " " " " " " " " " " " " " " "	R209				
R211 QRD14IJ-161SY 150 Ω " " " " " " " " " " " " " " " " " "	R210		220 Ω		
R211 QRD14IJ-104SY 100 kΩ       "       "         R272 QRD14IJ-222SY 2.2 kΩ       "       "         R273 QRD14IJ-331SY 330 Ω       "       "         R274 QRD14IJ-182SY 1.8 kΩ       "       "         R275 QRD14IJ-163SY 15 kΩ       "       "         R301 QRD14IJ-163SY 56 kΩ       "       "         R302 QRD14IJ-163SY 56 kΩ       "       "         R303 QRD14IJ-103SY 10 kΩ       "       "         R304 QRD14IJ-102SY 1 kΩ       "       "         R305 QRD14IJ-303SY 30 kΩ       "       "         R306 QRD14IJ-102SY 1 kΩ       "       "         R310 QRD14IJ-102SY 1 kΩ       "       "         R311 QRD14IJ-102SY 1 kΩ       "       "         R312 QRD14IJ-102SY 1 kΩ       "       "         R313 QRD14IJ-102SY 1 kΩ       "       "         R314 QRD14IJ-102SY 1 kΩ       "       "         R315 QRD14IJ-102SY 1 kΩ       "       "         R315 QRD14IJ-82SY 1 kΩ       "       "         R316 QRD14IJ-82SY 1 kΩ       "       "         R318 QRD14IJ-82SY 2.2 kΩ       "       "         R319 QRD14IJ-82SY 8.2 kΩ       "       "         R350 QRD14IJ-82SY 8.2 kΩ       "       " </td <td>1</td> <td></td> <td></td> <td></td> <td></td>	1				
R271 QRD14IJ-102SY R273 QRD14IJ-133ISY 330 Ω " " " " " " " " " " " " " " " " " "	1				
R273	1	1			
R274       QRD141J-182SY 15 kΩ       "       "         R301       QRD141J-163SY 15 kΩ       "       "         R302       QRD141J-563SY 56 kΩ       "       "         R303       QRD141J-163SY 150 kΩ       "       "         R304       QRD141J-102SY 150 kΩ       "       "         R305       QRD141J-333SY 33 kΩ       "       "         R306       QRD141J-302SY 1 kΩ       "       "         R307       QRD141J-102SY 1 kΩ       "       "         R310       QRD141J-102SY 1 kΩ       "       "         R311       QRD141J-102SY 1 kΩ       "       "         R312       QRD141J-102SY 1 kΩ       "       "         R313       QRD141J-102SY 1 kΩ       "       "         R314       QRD141J-102SY 1 kΩ       "       "         R315       QRD141J-102SY 1 kΩ       "       "         R316       QRD141J-681SY 680 Ω       "       "         R317       QRD141J-682SY 688 kΩ       "       "         R319       QRD141J-821SY 755 Ω       %       "         R351       QRD141J-393SY 39 kΩ       "       "         R352       QRD141J-822SY 8.2 kΩ       "       "<					,,
R275       QRD141J-153SY       15 kΩ       "       "         R301       QRD141J-683SY       68 kΩ       "       "         R302       QRD141J-154SY       150 kΩ       "       "         R303       QRD141J-103SY       10 kΩ       "       "         R305       QRD141J-303SY       30 kΩ       "       "         R306       QRD141J-102SY       1 kΩ       "       "         R307       QRD141J-102SY       1 kΩ       "       "         R310       QRD141J-102SY       "       "       "         R311       QRD141J-102SY       "       "       "         R312       QRD141J-102SY       "       "       "         R314       QRD141J-102SY       "       "       "         R314       QRD141J-102SY       "       "       "         R315       QRD141J-102SY       "       "       "         R316       QRD141J-20SY       "       "       "         R316       QRD141J-82SY       680 Ω       "       "         R320       QRD141J-82SY       820 Ω       "       "         R355       QRD141J-821SY       820 Ω       "				-,-	"
R301       QRD141J-563SY 56 kΩ       "       "         R302       QRD141J-154SY 150 kΩ       "       "         R304       QRD141J-103SY 10 kΩ       "       "         R306       QRD141J-333SY 33 kΩ       "       "         R307       QRD141J-102SY 1 kΩ       "       "         R310       QRD141J-102SY 1 kΩ       "       "         R311       QRD141J-102SY 1 kΩ       "       "         R312       QRD141J-102SY 1 kΩ       "       "         R313       QRD141J-102SY 1 kΩ       "       "         R314       QRD141J-102SY 1 kΩ       "       "         R315       QRD141J-102SY 1 kΩ       "       "         R316       QRD141J-102SY 1 kΩ       "       "         R317       QRD141J-681SY 680 Ω       "       "         R319       QRD141J-682SY 680 Ω       "       "         R320       QRD141J-751SY 750 Ω       "       "         R351       QRD141J-393SY 39 kΩ       "       "         R352       QRD141J-821SY 820 Ω       "       "         R354       QRD141J-393SY 39 kΩ       "       "         R355       QRD141J-393SY 39 kΩ       "       " <td></td> <td>l .</td> <td></td> <td>,,</td> <td>,,</td>		l .		,,	,,
R302       QRD141J-563SY       56 kΩ       "       "         R304       QRD141J-154SY       150 kΩ       "       "         R305       QRD141J-102SY       1 kΩ       "       "         R306       QRD141J-303SY       30 kΩ       "       "         R307       QRD141J-102SY       1 kΩ       "       "         R310       QRD141J-102SY       "       "       "         R311       QRD141J-102SY       "       "       "         R312       QRD141J-102SY       "       "       "         R313       QRD141J-102SY       "       "       "         R314       QRD141J-102SY       "       "       "         R315       QRD141J-102SY       "       "       "         R316       QRD141J-681SY       880 Ω       "       "         R318       QRD141J-881SY       880 Ω       "       "         R319       QRD141J-881SY       850 Ω       "       "         R351       QRD141J-822SY       8.2 kΩ       "       "         R352       QRD141J-822SY       8.2 kΩ       "       "         R355       QRD141J-82SY       8.8 kΩ <td< td=""><td></td><td></td><td></td><td>"</td><td>,,</td></td<>				"	,,
R304       QRD141J-103SY   10 kΩ   "       "         R305       QRD141J-333SY   33 kΩ   "       "         R306       QRD141J-303SY   30 kΩ   "       "         R317       QRD141J-303SY   1 kΩ   "       "         R310       QRD141J-102SY   1 kΩ   "       "         R311       QRD141J-102SY   "       "         R312       QRD141J-102SY   "       "         R313       QRD141J-102SY   "       "         R314       QRD141J-102SY   "       "         R315       QRD141J-102SY   "       "         R316       QRD141J-681SY   680 Ω   "       "         R317       QRD141J-682SY   6.8 kΩ   "       "         R318       QRD141J-751SY   750 Ω   "       "         R320       QRD141J-822SY   8.2 kΩ   "       "         R351       QRD141J-822SY   8.2 kΩ   "       "         R352       QRD141J-822SY   8.2 kΩ   "       "         R354       QRD141J-822SY   8.2 kΩ   "       "         R355       QRD141J-82SY   1.8 kΩ   "       "         R356       QRD141J-82SY   1.8 kΩ   "       "         R357       QRD141J-23SY   2.2 kΩ   "       "         R404       QRD141J-563SY   "       "       "         R406<			56 kΩ	"	"
R305       QRD141J-102SY 1 kΩ       "         R306       QRD141J-303SY 30 kΩ       "         R307       QRD141J-303SY 30 kΩ       "         R310       QRD141J-102SY 1 kΩ       "         R311       QRD141J-102SY 1 kΩ       "         R312       QRD141J-102SY 1 kΩ       "         R313       QRD141J-102SY 1 kΩ       "         R314       QRD141J-102SY 1 kΩ       "         R315       QRD141J-102SY 1 kΩ       "         R316       QRD141J-102SY 1 kΩ       "         R317       QRD141J-681SY kΩ       680 Ω       "         R318       QRD141J-681SY kΩ       680 Ω       "         R319       QRD141J-751SY kΩ       "       "         R320       QRD141J-393SY kΩ       *       "         R351       QRD141J-393SY kΩ       *       "         R352       QRD141J-822SY kΩ       *       "         R355       QRD141J-821SY k20 Ω       "       "         R355       QRD141J-823SY k20 Ω       "       "         R356       QRD141J-823SY k20 Ω       "       "         R357       QRD141J-823SY k20 Ω       "       "         R403       QRD141J-563SY kΩ	R303	QRD141J-154SY	150 kΩ	"	"
R306       QRD141J-303SY 30 kΩ       "       "         R307       QRD141J-102SY 1 kΩ       "       "         R310       QRD141J-102SY 1 kΩ       "       "         R311       QRD141J-102SY 1 m       "       "         R312       QRD141J-102SY 1 m       "       "         R313       QRD141J-102SY 1 m       "       "         R314       QRD141J-102SY 1 m       "       "         R315       QRD141J-102SY 1 m       "       "         R316       QRD141J-102SY 1 m       "       "         R317       QRD141J-681SY 1 m       680 Ω 1 m       "         R319       QRD141J-682SY 1 m       750 Ω 1 m       "         R319       QRD141J-222SY 2 2 kΩ 1 m       "       "         R351       QRD141J-393SY 39 kΩ 1 m       "       "         R352       QRD141J-821SY 82 kΩ 1 m       "       "         R353       QRD141J-821SY 82 kΩ 1 m       "       "         R354       QRD141J-393SY 39 kΩ 1 m       "       "         R355       QRD141J-393SY 39 kΩ 1 m       "       "         R356       QRD141J-822SY 82 kΩ 1 m       "       "         R358       QRD141J-823SY 82 kΩ 1 m	R304	QRD141J-103SY	10 kΩ	"	"
R306       QRD141J-303SY       30 kΩ       "       "         R310       QRD141J-102SY       1 kΩ       "       "         R311       QRD141J-102SY       1 kΩ       "       "         R312       QRD141J-102SY       "       "       "         R313       QRD141J-102SY       "       "       "         R314       QRD141J-102SY       "       "       "         R315       QRD141J-102SY       "       "       "         R316       QRD141J-68SY       680 Ω       "       "         R318       QRD141J-68SY       680 Ω       "       "         R319       QRD141J-68SY       680 Ω       "       "         R320       QRD141J-822SY       8.2 kΩ       "       "         R351       QRD141J-82SY       8.2 kΩ       "       "         R352       QRD141J-82SY       8.2 kΩ       "       "         R354       QRD141J-82SY       8.2 kΩ       "       "         R355       QRD141J-82SY       1.8 kΩ       "       "         R356       QRD141J-82SY       1.8 kΩ       "       "         R357       QRD141J-39SY       2.2 kΩ	R305	QRD141J-333SY	33 kΩ	"	"
R310       QRD141J-102SY 1 kΩ       "         R311       QRD141J-102SY "       "       "         R312       QRD141J-102SY "       "       "         R313       QRD141J-102SY "       "       "         R314       QRD141J-102SY "       "       "         R315       QRD141J-102SY "       "       "         R315       QRD141J-681SY R       680 Ω       "       "         R317       QRD141J-681SY R       680 Ω       "       "         R318       QRD141J-682SY R       68 kΩ       "       "         R319       QRD141J-682SY R       68 kΩ       "       "         R320       QRD141J-822SY R       2.2 kΩ       "       "         R351       QRD141J-822SY R       8.2 kΩ       "       "         R353       JRRD141J-152SY L       1.5 kΩ       "       "         R354       QRD141J-82SY R       8.2 kΩ       "       "       "         R355       QRD141J-82SY R       8.2 kΩ       "       "       "         R355       QRD141J-22SY Y       R       QRD       "       "         R358       QRD141J-80SY R       8.0 kΩ       "       " </td <td>1</td> <td></td> <td></td> <td></td> <td></td>	1				
R311       QRD141J-102SY       "	I				
R312 QRD141J-102SY R313 QRD141J-102SY R314 QRD141J-102SY R315 QRD141J-102SY R316 QRD141J-102SY R317 QRD141J-681SY R318 QRD141J-681SY R319 QRD141J-751SY R320 QRD141J-751SY R350 QRD141J-22SY R351 QRD141J-393SY R352 QRD141J-82SY R353 QRD141J-82SY R354 QRD141J-82SY R355 QRD141J-821SY R356 QRD141J-821SY R357 QRD141J-152SY R358 QRD141J-1821SY R359 QRD141J-22SSY R359 QRD141J-22SSY R359 QRD141J-22SSY R359 QRD141J-22SSY R359 QRD141J-33SSY R360 QRD141J-33SSY R370 QRD141J-34SY R370 QRD141J-33SY R370 QRD141J-30SY R370 QRD141J-30SY R370 QRD141J-30SY R370 QRD					
R312       QRD141J-102SY       "					
R313	ł				
R315       QRD141J-102SY       "       "       "         R316       QRD141J-102SY       "       "       "       "         R317       QRD141J-681SY       680 Ω       "       "       "         R318       QRD141J-682SY       6.8 kΩ       "       "       "         R319       QRD141J-751SY       750 Ω       "       "       "         R320       QRD141J-393SY       39 kΩ       "       "       "         R351       QRD141J-822SY       8.2 kΩ       "       "       "         R352       QRD141J-822SY       8.2 kΩ       "       "       "         R353       QRD141J-821SY       820 Ω       "       "       "         R354       QRD141J-821SY       820 Ω       "       "       "         R355       QRD141J-821SY       820 Ω       "       "       "         R356       QRD141J-821SY       1.8 kΩ       "       "       "         R358       QRD141J-821SY       820 Ω       "       "       "         R403       QRD141J-563SY       "       "       "       "         R406       QRD141J-34SY       "       "       <	l .			,,	,,
R316       QRD141J-102SY       "       "       "         R317       QRD141J-681SY       680 Ω       "       "         R318       QRD141J-682SY       6.8 kΩ       "       "         R319       QRD141J-751SY       750 Ω       "       "         R320       QRD141J-222SY       2.2 kΩ       "       "         R351       QRD141J-393SY       39 kΩ       "       "         R352       QRD141J-821SY       8.2 kΩ       "       "         R353       QRD141J-821SY       8.2 kΩ       "       "         R354       QRD141J-821SY       8.2 kΩ       "       "         R355       QRD141J-821SY       8.2 kΩ       "       "         R356       QRD141J-821SY       8.2 kΩ       "       "         R358       QRD141J-821SY       820 Ω       "       "         R359       QRD141J-223SY       1.8 kΩ       "       "         R403       QRD141J-36SSY       56 kΩ       "       "         R406       QRD141J-34SY       "       "         R407       QRD141J-34SY       "       "         R410       QRD141J-373SY       "       "	!	1	,,	,,	"
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			"	,,	,,
R318       QRD141J-682SY       6.8 kΩ       "       "         R319       QRD141J-751SY       750 Ω       "       "         R320       QRD141J-222SY       2.2 kΩ       "       "         R351       QRD141J-393SY       39 kΩ       "       "         R352       QRD141J-822SY       8.2 kΩ       "       "         R353       QRD141J-821SY       1.5 kΩ       "       "         R354       QRD141J-821SY       820 Ω       "       "         R355       QRD141J-933SY       39 kΩ       "       "         R356       QRD141J-82SY       1.8 kΩ       "       "         R357       QRD141J-82SY       1.8 kΩ       "       "         R359       QRD141J-82SY       1.8 kΩ       "       "         R403       QRD141J-68SY       56 kΩ       "       "         R405       QRD141J-34SY       130 kΩ       "       "         R406       QRD141J-34SY       130 kΩ       "       "         R409       QRD141J-391SY       "       "       "         R410       QRD141J-473SY       "       "       "         R411       QRD141J-7224SY       "			680 Ω	",	,,
R319       QRD141J-222SY       2.2 kΩ       "         R351       QRD141J-393SY       39 kΩ       "         R352       QRD141J-822SY       8.2 kΩ       "         R354       QRD141J-152SY       1.5 kΩ       "         R355       QRD141J-821SY       820 Ω       "         R356       QRD141J-82SY       6.8 kΩ       "         R357       QRD141J-82SY       1.8 kΩ       "         R358       QRD141J-821SY       820 Ω       "         R359       QRD141J-223SY       22 kΩ       "         R403       QRD141J-563SY       "       "         R405       QRD141J-222SY       2.2 kΩ       "         R406       QRD141J-222SY       "       "         R407       QRD141J-34SY       "       "         R409       QRD141J-391SY       "       "         R410       QRD141J-391SY       "       "         R411       QRD141J-473SY       "       "         R412       QRD141J-473SY       "       "         R413       QRD141J-153SY       "       "         R414       QRD141J-153SY       "       "         R416       QRD141J-153SY	1		l .	"	"
R350 QRD141J-393SY R351 QRD141J-822SY R352 QRD141J-822SY R353 JRD141J-152SY 1.5 kΩ " " R354 QRD141J-821SY R355 QRD141J-821SY R355 QRD141J-82SY R357 QRD141J-82SY R358 QRD141J-82SY R359 QRD141J-82SY R359 QRD141J-223SY R403 QRD141J-563SY R405 QRD141J-222SY R406 QRD141J-222SY R407 QRD141J-134SY R369 QRD141J-313SY R409 QRD141J-313SY " " " " " " " " " " " " " " " " " " "	R319	QRD141J-751SY	750 Ω	"	"
R351 QRD141J-822SY R353 QRD141J-152SY 1.5 kΩ " " " " " " " " " " " " " " " " " "	R320	QRD141J-222SY	2.2 kΩ	"	"
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	R351	QRD141J-393SY	39 kΩ	"	"
R354 QRD141J-821SY R355 QRD141J-821SY R355 QRD141J-821SY R355 QRD141J-182SY 1.8 kΩ " " R356 QRD141J-182SY 1.8 kΩ " " " R358 QRD141J-821SY R359 QRD141J-223SY R403 QRD141J-563SY $^{\circ}$ 56 kΩ " " " $^{\circ}$ R406 QRD141J-184SY $^{\circ}$ 70 QRD141J-134SY $^{\circ}$ 80 QRD141J-134SY $^{\circ}$ 80 QRD141J-134SY $^{\circ}$ 80 QRD141J-318SY $^{\circ}$ 80 QRD141J-31SY $^{\circ}$ 81 QRD141J-37SY $^{\circ}$ 81 QRD141J-37SY $^{\circ}$ 81 QRD141J-37SY $^{\circ}$ 81 QRD141J-224SY $^{\circ}$ 81 QRD141J-153SY $^{\circ}$ 81 QRD141J-153SY $^{\circ}$ 81 QRD141J-153SY $^{\circ}$ 81 QRD141J-153SY $^{\circ}$ 81 QRD141J-332SY $^{\circ}$ 93 QRD141J-332SY $^{\circ}$ 95 QRD141J-332SY $^{\circ}$ 96 QRD141J-332SY $^{\circ}$ 97 QRD141J-332SY $^{\circ}$ 98 QRD141J-332SY $^{\circ}$ 98 QRD141J-332SY $^{\circ}$ 99 QRD141J-332SY $^{\circ}$ 99 QRD141J-332SY $^{\circ}$ 99 QRD141J-332SY $^{\circ}$ 90 QRD141J-332SY $^{$	R352	QRD141J-822SY	8.2 kΩ	"	"
R355 QRD141J-393SY 39 kΩ " " R356 QRD141J-393SY 39 kΩ " " R357 QRD141J-182SY 1.8 kΩ " " R358 QRD141J-218SY 1.8 kΩ " " R359 QRD141J-223SY 22 kΩ " " R403 QRD141J-563SY 56 kΩ " " R404 QRD141J-563SY " " " " R405 QRD141J-222SY 2.2 kΩ " " " R406 QRD141J-222SY " " " " R407 QRD141J-134SY 130 kΩ " " R408 QRD141J-313SY " " " " R410 QRD141J-391SY " " " " R411 QRD141J-473SY " " " " R412 QRD141J-473SY " " " " R412 QRD141J-473SY " " " " R413 QRD141J-224SY 220 kΩ " " " R414 QRD141J-22SY " " " " R415 QRD141J-153SY " " " " R416 QRD141J-153SY " " " " R417 QRD141J-332SY " " " " " R418 QRD141J-332SY " " " " "	R353	l .			
R356 QRD141J-682SY 6.8 kΩ " " " " " " " " " " " " " " " " " "	_		I		
R356 QRD141J-182SY 1.8 kΩ " " " R358 QRD141J-182SY 820 Ω " " " " R359 QRD141J-223SY 22 kΩ " " " " R403 QRD141J-563SY $56  k\Omega$ " " " " " " " " " " " " " " " " " " "					
R357	1				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1			1	
R404       QRD141J-563SY       "       "       "         R405       QRD141J-222SY       2.2 kΩ       "       "         R406       QRD141J-222SY       "       "       "         R407       QRD141J-134SY       130 kΩ       "       "         R408       QRD141J-34SY       "       "       "         R409       QRD141J-391SY       390 Ω       "       "         R411       QRD141J-473SY       "       "       "         R412       QRD141J-473SY       "       "       "         R413       QRD141J-224SY       "       "       "         R414       QRD141J-224SY       "       "       "         R415       QRD141J-153SY       "       "       "         R416       QRD141J-332SY       "       "       "         R417       QRD141J-332SY       "       "       "         R418       QRD141J-332SY       "       "       "	1		1	,,	"
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				<del>,,</del>	"
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1	1	2,2 kΩ	"	,,
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1			"	"
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1		130 kΩ		
R410 QRD141J-391SY 39 Ω Ω " " " " " " " " " " " " " " " " "	R408	QRD141J-134SY	"	"	11 <sup>8</sup>
R410 QRD141J-473SY 47 kΩ " " R411 QRD141J-473SY " " " R413 QRD141J-224SY 220 kΩ " " R414 QRD141J-224SY " " " R415 QRD141J-153SY 15 kΩ " " R416 QRD141J-153SY " " " R417 QRD141J-332SY 3.3 kΩ " " R418 QRD141J-332SY " " "	R409	QRD141J-391SY	390 Ω		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	i .		İ		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$					
R416 QRD141J-153SY " " " " " " " " " " " " " " " " " " "					
R416 QRD141J-332SY 3.3 kΩ " " R418 QRD141J-332SY " " "	1		l .		
R417 QRD141J-332SY " " "		1	i		
N416 UND141J-33251	1	1	3.3 K32	1	
			L	L	

 $\triangle$ : Safety Parts

#### Resistors

Item No.	Part Number	R	ating	Description		
R419	QRD141J-102SY	1kΩ	1/4 W	Carbon		
R420	QRD141J-102SY	"	"	"		
R421	QRD141J-221SY	220 Ω	"	"	$\triangle$	
R422	QRD141J-221SY	"	"	"	$\triangle$	
R423	QRD141J-564SY	560 kΩ	"	"		
R424	QRD141J-564SY	,,	"	"		
R461	QRD141J-334SY	330 kΩ	"	"		
R462	QRD141J-334SY	"	"	"		
R463	QRD141J-104SY	100 kΩ	"	"		
R464	QRD141J-104SY	"	"	"		

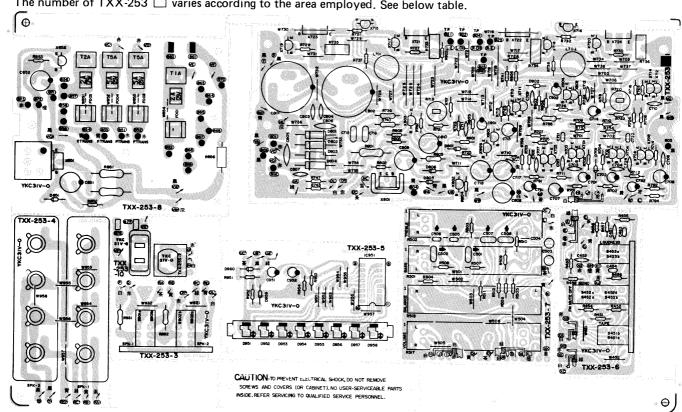
 ⚠: Safety Parts

#### Others

Item No.	Part Number	Rating	Description
P104	QMV5005-002		2 Pins Plug
S401	QSP0259-107		Select Switch
PHAUX	E03591-41F		Pin Jack
	EWR25J-06DD		Flat Cable
	E03572-019P		Antenna Terminal
	E300098-001		Shield Case
	E43727-001		Tab
	E67125-001		LED Holder (Signal)
	E67126-001		LED Holder (Tuned)
	E67127-001		LED Holder (Stereo)
	QAA2232-002		Tuning Capacitor
	QMV5005-002		2 Pins Plug
	QMV5005-004		4 Pins Plug
	QMV5005-006		6 Pins Plug

# 8-(2) TXX-253 Main Amp., Power Supply and All Functions P.C. Board Ass'y

The number of TXX-253  $\square$  varies according to the area employed. See below table.



#### Each Individual P.C. Board Location

1 8 2 7 6 **(5**) 4 3 9

The specific symbols (  $_{\bar{\pi}}$  ,  $_{\mathbb{R}}$  ,  $_{\dot{\theta}}$  ,  $\ldots$  etc.) on a surface of P.C. Board are actually unrelated to the repair service and are significant denotement in order to process the proper assembly at the factory.

- ① TXX-253 ☐-1 : Main Amp. P.C. Board Ass'y ② TXX-253-2 Headphones Jack P.C. Board Ass'y
- ③ TXX-253-3 : Speaker Select Switch P.C. Board Ass'y (4) TXX-253-4 Speaker Terminal P.C. Board Ass'y **⑤** TXX-235-5 Power Indicator L.E.D. P.C. Board Ass'y
- **6** TXX-253-6 : Mode Select Switch P.C. Board Ass'y ⑦ TXX-253-7 Volume Control P.C. Board Ass'y
- ® TXX-253 -8 : Power Supply P.C. Board Ass'y 9 TXX-253-9 "CAUTION" Printed Board (for U.S.A. only)
- 10 TXX-253 -10: AC Socket P.C. Board Ass'y

In \_\_ should be indicated an area code according to the table shown below when placing an order.

Designated area	P.C. Board Ass'y
Europe	TXX-253 F
U.K.	TXX-253 E

#### **Transistors**

Itom No	Part Number	F	Rating	Description		
item ivo.	rart Number	PC	fT	Descrip	Maker	
X701	2SC1775AV(F1)	0.2 W	200 MHz	Silicon	Hitachi	
X701 X702	2SC1775AV(F1)	U.Z VV	200 MH2	Silicon	",	
	2SC1775AV(F1)	,,	,,	,,	,,	
X703	2SC1775AV(F1)	,,	,,	,,	<b>,,</b>	
X704	2SA872AV(E)	0.3 W	120 MHz	,,	,,	
X705		0.3 W	120 NITZ	,,	,,	
X706	2SA872AV(E)	<i>",</i>	\	",	'',	
X707	2SA872AV(E)	\ <i>''</i>		",	'',	
X708	2SA872AV(E)		"	",	",	
X711	2SA872AV(E)	"	"		1	
X712	2SA872AV(E)	. "	"	"	"	
X713	2SA949(O,Y)	3 W	"	"	Toshiba	
X714	2SA949(O,Y)	"	"	"	"	
X715	2SC458(C)	0.2 W	230 MHz	"	Hitachi	
X716	2SC458(C)	"	"	"	"	
X717	2SC2235(O,Y)	0.9 W	120 MHz	"	Toshiba	
X718	2SC2235(O,Y)	"	",	"	"	
X719	2SA965(O,Y)	"	"	"	"	
X720	2SA965(O,Y)	"	"	"	"	
X721	2SD716LB(O,R)	60 W	12 MHz	"	"	
X722	2SD716LB(O,R)	"	"	"	"	
X723	2SB686LB(O,R)	"	10 MHz	"	"	
X724	2SB686LB(O.R)	,,	"	"	"	
X801	2SD313V(D,E)	30 W	8 MHz	"	Sanyo	
X802	2SA1029(C)	0.2 W	200 MHz	"	Hitachi	
X803	2SA872AV(E)	0.3 W	120 MHz	"	"	
X851	2SD313V(D.E)	30 W	8 MHz	"	Sanyo	
X852	2SC458(D)	0.2 W	230 MHz	"	Hitachi	
X901	2SA872AV(E)	0.3 W		"	"	
		"	",	"	"	
_		0.2 W	200 MHz	"	· "	
_		"	"	,,	"	
X901 X902 X903 X904	2SA872AV(E) 2SA872AV(E) 2SC1775AV(F) 2SC1775AV(F)	0.2 W	,, 200 MHz	"	"	

#### **Integrated Circuit**

Item No.	Part Number	Rating	Descrip	tion
		Pc		Maker
IC951	BA684		IC	Toyo dengu

#### Diodes

Item No.	Part Number	Rating	Descrip	tion
				Maker
D701	RD13EB3		Silicon	NEC
			(Zener)	
D801	S3V20F		Silicon	Shindengen /
D802	S3V20F		"	" 🛕
D803	S3V20F		"	<i>"</i>
D804	S3V20F		"	'' ▲
D805	RD13EB3		Silicon	NEC
			(Zener)	
D806	RD13EB3		"	<b>"</b>
D901	1S2076-31		Silicon	Hitachi
D902	1S2076-31		"	"
D951	SLB-26GG		Silicon	NEC
			(Zener)	
D952	SLB-26GG		"	Toyo Dengu
D953	SLB-26GG		"	"
D954	SLB-26GG		"	"
D955	SLB-26GG		"	"
D956	SLB-26GG		"	"
D957	SLB-26GG		"	"
D958	SLB-26GG		"	"
D959	1S2076-31		Silicon	Hitachi
D960	1S2076-31		"	"

♠ : Safety Parts

#### Coils

Item No.	Part Number	Rating	Description	
L701	E04059-1R2		Choke Coil	
L702	E04059-1R2		"	

#### Capacitors

Capaci				
Item No.	Part Number	Rati	ng	Description
C451	QCS21HJ-151	160 PF	50 V	Ceramic
C452	QCS21HJ-151	"	"	"
C453	QFM31HK-183	0.018 μF	"	Mylar
C454	QFM31HK-183	"	"	"
C501	QFM31HK-333	0.033 μF	"	"
C502	QFM31HK-333	"	"	"
C503	QEZ0046-224	0.22 μF	"	Electrolytic
C504	QEZ0046-224	"	"	"
C505	QFM31HK-182	1800 PF	50 V	Mylar
C506	QFM31HK-182	"	"	"
C507	QFM31HK-183	0.018 µF	"	"
C508	QFM31HK-183	"	"	"
C701	QET51HR-225	2.2 μF	"	Electrolytic
C702	QET51HR-225	"	"	"
C703	QCS21HJ-101	100 PF	"	Ceramic
C704	QCS21HJ-101	"	"	11
C705	QCS21HJ-100	10 PF	"	"
C706	QCS21HJ-100	"	"	"
C707	QET51CR-107	100 μF	16 V	Electrolytic
C708	QET51CR-107	"	"	"
C709	QCS21HJ-390	39 PF	50 V	Ceramic
C710	QCS21HJ-390	''	"	"
C711	QCS21HJ-331	330 PF	"	"
C712	QCS21HJ-331		",	
C713	QET51HR-226	22 μF		Electrolytic
C714	QET51HR-226	"	"	"
C715	QFM31HK-473	0.047 μF	,, ''	Mylar
C716	QFM31HK-473	100 =	'',	
C717	QET51HR-107	100 μF		Electrolytic
C718	QET51VR-107		35 V	
C723	QCS21HJ-330	33 PF	50 V	Ceramic
C724	QCS21HJ-330		",	
C791	QET51HR-475	4.7 μF	",	Electrolytic
C792	QET51HR-475	C000E		,,
C801	QEW91VA-688E	6800 μF	35 V	"
C802	QEW91VA-688E			
C803	QCF21HP-473	0.047 µF	50 V	Ceramic
C804	QCF21HP-473	0.01		 ,,
C805	QCE22HP-103	0.01 μF	500 V	 
C806	QCE22HP-103	,,	E0.14	,,
C807	QCF21HP-103		50 V	
C808	QET51CR-227	220 μF	16 V	Electrolytic
C809	QET51CR-477	470 μF	35 V	,,
C810 C851	QET51VR-107 QET51CR-227	100 μF 220 μF	35 V 16 V	"
		220 μΓ	16 V	,,
C852	QET51CR-227			 ,,
C901	QET51AR-476	47 μF	10 V	 ,,
C902 C951	QET51AR-476 QET51ER-106	10 μF	25 V	 ,,
			50 V	,,
C952	QET51HR-225	2.2 μF	50 V	

#### Resistors

11031310	13				
Item No.	Part Number	Rati	ng	Description	]
R451	QRD141J-332SY	$3.3~k\Omega$	1/4 W	Carbon	1
R452	QRD141J-332SY	"	"	"	1
R453	QRD141J-332SY	"	"	"	
R454	QRD141J-332SY	"	"	"	ı
R455	QRD141J-223SY	22 kΩ	"	"	1

#### Resistors

Item No.	T	Dati		Description
R456	QRD141J-223SY	Ratin 22 kΩ	1/4 W	Description Carbon
R457	QRD141J-564SY	1	1/4 00	Carbon
R458	QRD141J-564SY		,,	11
R459	QRD141J-333SY		,,	,,
R501	QVZ5010-007	",		Variable (Bass)
R502	QVZ5010-007	"	-	Variable (Treble)
R503	QRD141J-123SY	12 kΩ	1/4 W	Carbon
R504	QRD141J-123SY		1/4 00	Carbon "
R505	QRD141J-182SY	1	,,	"
R506	QRD141J-182SY	"	"	"
R507	QRD141J-823SY	82 kΩ	"	"
R508	QRD141J-823SY		,,	"
R509	QRD141J-182SY	i	,, •	,,
R510	QRD141J-182SY	"	"	"
R511	QRD141J-681SY	$\Omega$ 089	"	"
R512	QRD141J-681SY	,,	"	"
R517	QVZ5010-008	250 kΩ		Variable
				(Main Volume)
R518	QVZ5010-009	"		Variable (Balance)
R701	QRD141J-222SY	$2.2 k\Omega$	1/4 W	Carbon
R702	QRD141J-222SY	"	"	"
R703	QRD141J-104SY	100 kΩ	"	,,
R704	QRD141J-104SY	"	"	"
R705	QRD149J-101S	100 Ω	"	
R706	QRD149J-101S	"	"	" A " A
R707	QRD149J-101S	"	"	<i>"</i>
R708	QRD149J-101S	<b>"</b>	"	″
R709	QRD141J-822SY	8.2 kΩ	"	"
R710	QRD141J-822SY	"	"	"
R711	QRD141J-561SY	560 Ω	"	"
R712	QRD141J-561SY	"	"	"
R713	QRD141J-683SY	68 kΩ	"	"
R714	QRD141J-683SY	"	"	"
R715	QRD141J-272SY	$2.7 k\Omega$	"	"
R716	QRD141J-272SY	"	"	"
R717	QRD141J-332SY	$3.3 k\Omega$	"	"
R719	QVP4A0B-102	1 kΩ		Variable
R721	QRD141J-152SY	1.5 kΩ	1/4 W	Carbon
R722	QRD141J-152SY		",	"
R723	QRD141J-332SY	3.3 kΩ		
R724	QRD141J-332SY	"	" .	"
R725	QRD141J-122SY	$1.2 \text{ k}\Omega$	"	"
R726	QRD141J-122SY	,,	''	"
R727	QRD149J-100S	10 Ω	<i>''</i>	" <u>A</u>
R728	QRD149J-100S			<u> </u>
R729	QRD149J-100S	"		<i>"</i>
R730	QRD149J-100S	070.0	"	" <u>^</u>
R731 R732	QRD149J-271S	270 Ω	",	" "
R733	QRD149J-271S QRM024K-R22	0.22.0		A
R734		0.22 Ω	2 W	
R735	QRM024K-R22	",	",	Z!\
R736	QRM024K-R22 QRM024K-R22	,,	",	" <u>∧</u> ∧
R737	QRD149J-4R7S	4.7 Ω	1/4 W	Carbon 🛕
R738	QRD149J-4R7S	4.7 32	1/4 VV	" A
	QRD129J-4R7	,,	1/2 \\	·· A
R740	QRD129J-4R7 QRD129J-4R7	,,	1/2 W	··
	QRD1293-4R7 QRD149J-470S	47 Ω	1/4 W	" \\[ \frac{\fint}}}}}}}}{\frac{\fir}}}}}}}}}}}}}{\frac{\fir}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}
R742	QRD149J-470S	4/ 22	·/ VV	<i>"</i>
	QRD149J-330S	33 Ω	,,	" Å
	QRD149J-330S	"	,,	"
	QRD1493-3303 QRD129J-182	1.8 kΩ	1/2 W	
	QRD1293-162 QRD141J-432SY	1.8 kΩ	1/2 W	
	QRD141J-432SY	", X2E	','	"
	QRD141J-562SY	5.6 kΩ	,,	,,
			1	

#### Resistors

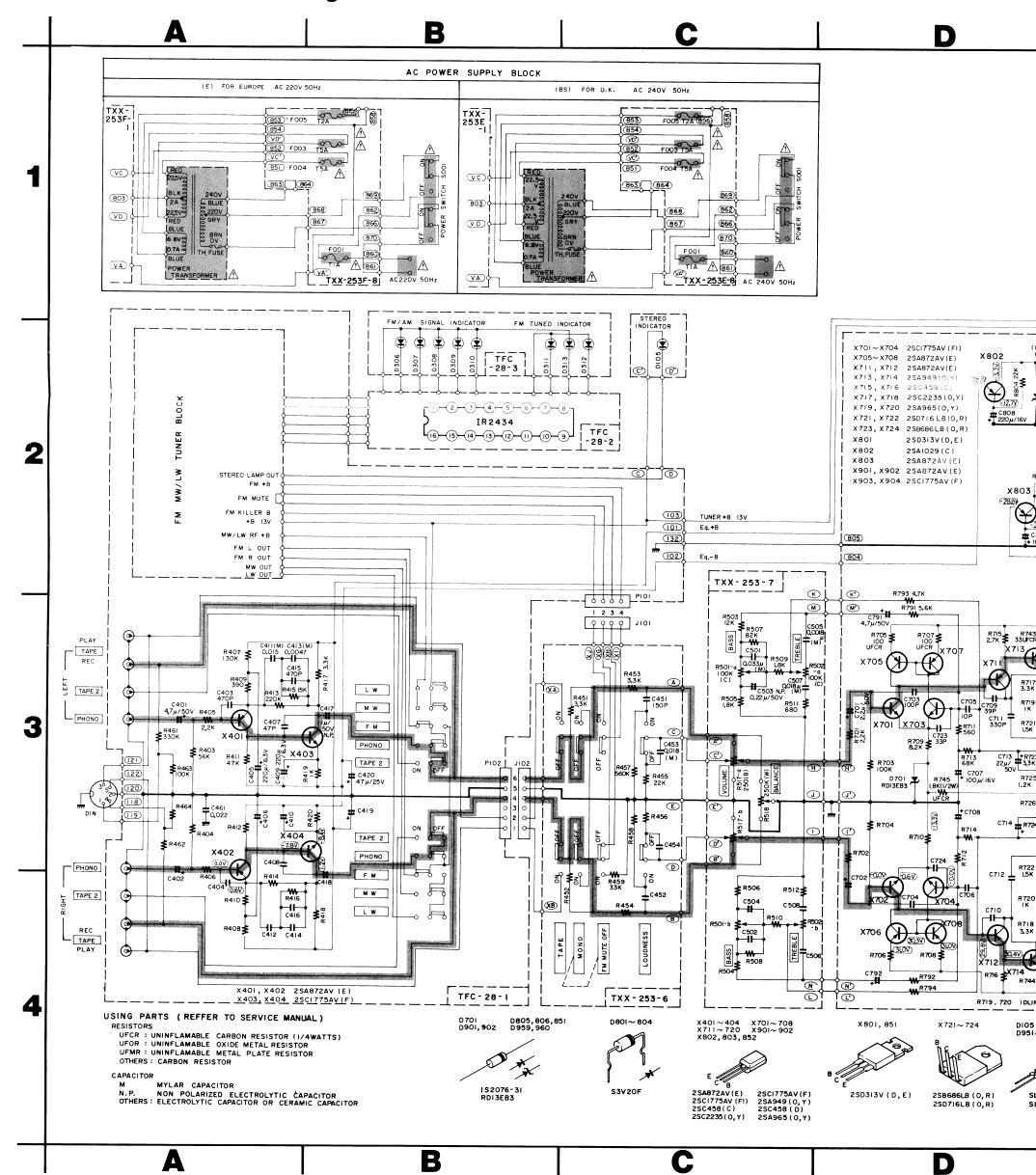
Item No.	Part Number	Rating		Description	
R792	QRD141J-562SY	5.6 kΩ	1/4 W	Carbon	
R793	QRD141J-472SY	$4.7 k\Omega$	<b>"</b>	"	
R794	QRD141J-472SY	"	"	"	
R801	QRG027J-101	100 Ω	2 W	Oxide Metal Film 🛆	
R802	QRD141J-682SY	$6.8~\mathrm{k}\Omega$	1/4 W	Carbon	
R803	QRD129J-122	1.2 kΩ	1/2 W	″ ≜	
R804	QRD141J-223SY	22 kΩ	1/4 W	"	
R805	QRD149J-100S	10 Ω	"	▼	
R806	QRD141J-103SY	10 kΩ	"	"	
R851	QRG027J-270	27 Ω	2 W	Oxide Metal Film 🛆	
R852	QRD141J-392SY	3.9 kΩ	1/4 W	Carbon	
R853	QRD141J-223SY	22 kΩ	"	"	
R856	QRC121K-275EM	$2.7~\mathrm{M}\Omega$	1/2 W	Composition A	
R901	QRD141J-153SY	15 kΩ	1/4 W	Carbon	
R902	QRD141J-153SY	"	"	"	
R903	QRD141J-102SY	1kΩ	"	"	
R904	QRD141J-102SY	"	"	"	
R905	QRD141J-681SY	$\Omega$ 089	"	"	
R906	QRD141J-681SY	"	"	"	
R931	QRD129J-181	180 Ω	1/2 W		
R932	QRD129J-181	"	"	″ ∧	
R952	QRD141J-390SY	39 Ω	1/4 W	"	
R953	QRD141J-103SY	10 kΩ	"	"	
R954	QRD141J-473SY	47 kΩ		,,	

#### Others

Item No.	Part Number	Rating	Description	
	EWS012-032		Socket Wire Ass'y (2 pins)	
	EWS014-027		Socket Wire Ass'y (4 pins)	
	EWS016-019		Socket Wire Ass'y (6 pins)	
	E03572-007EM E300825-001 E48965-002 E61537-002		Speaker Terminal LED Holder Fuse Clip A Heat-Sink	
	QMS6302-102 QSP0229-019		Headphones Jack Push Switch (Speaker Select)	
	QSP0249-114		Push Switch (TAPE. MONO/FM MUTE, LOUDNESS	

∴ Safety Parts

# 9. R-S11L Schematic Diagram

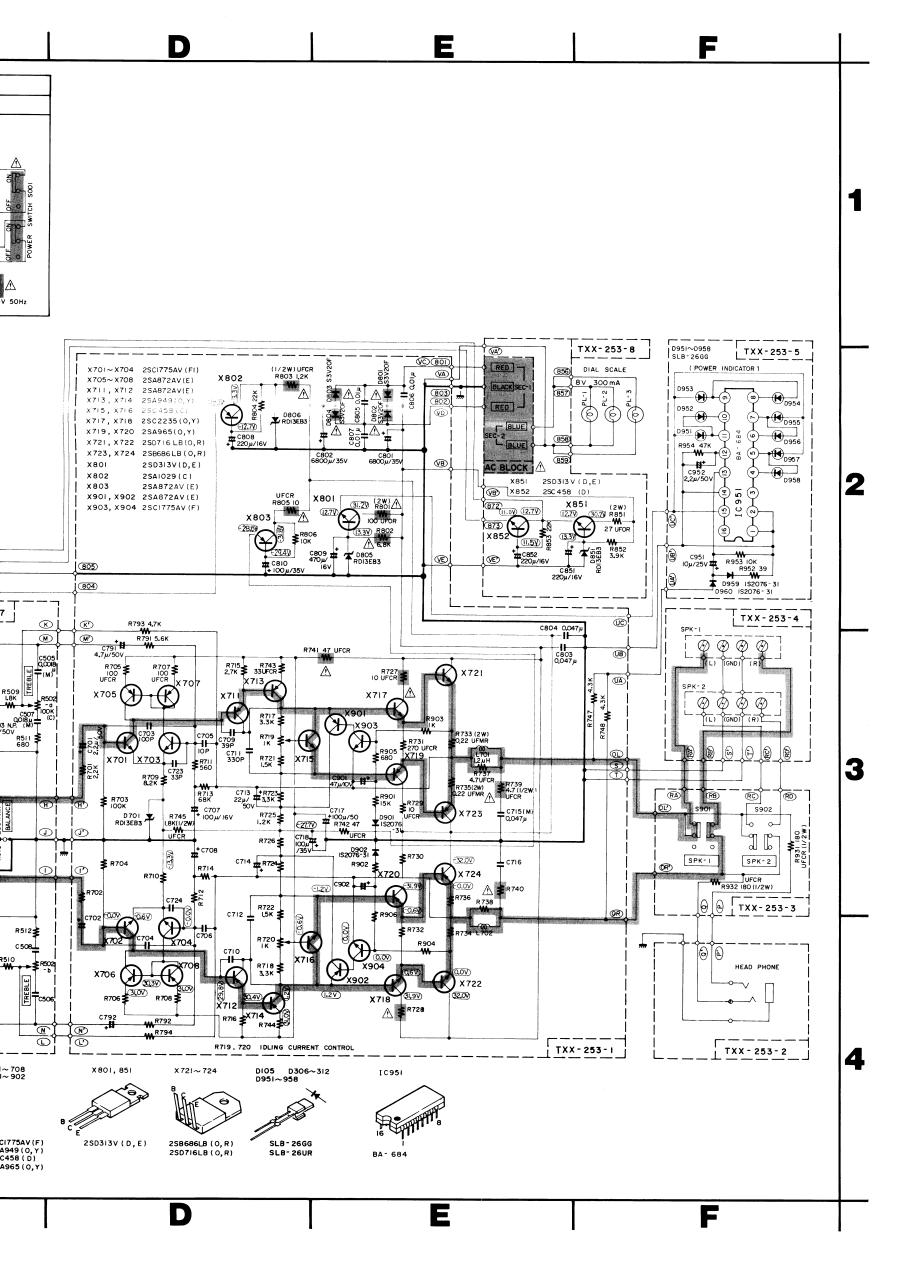


## Printed Circuit Board Ass'y Locations

P.C. Board Ass'y	Description	Page
TFC-28	FM/AM Tuner and Equalizer Amp. P.C. Board Ass'y	8
TXX-253	Main Amp., Power Supply and All Functions P.C. Board Ass'y	11

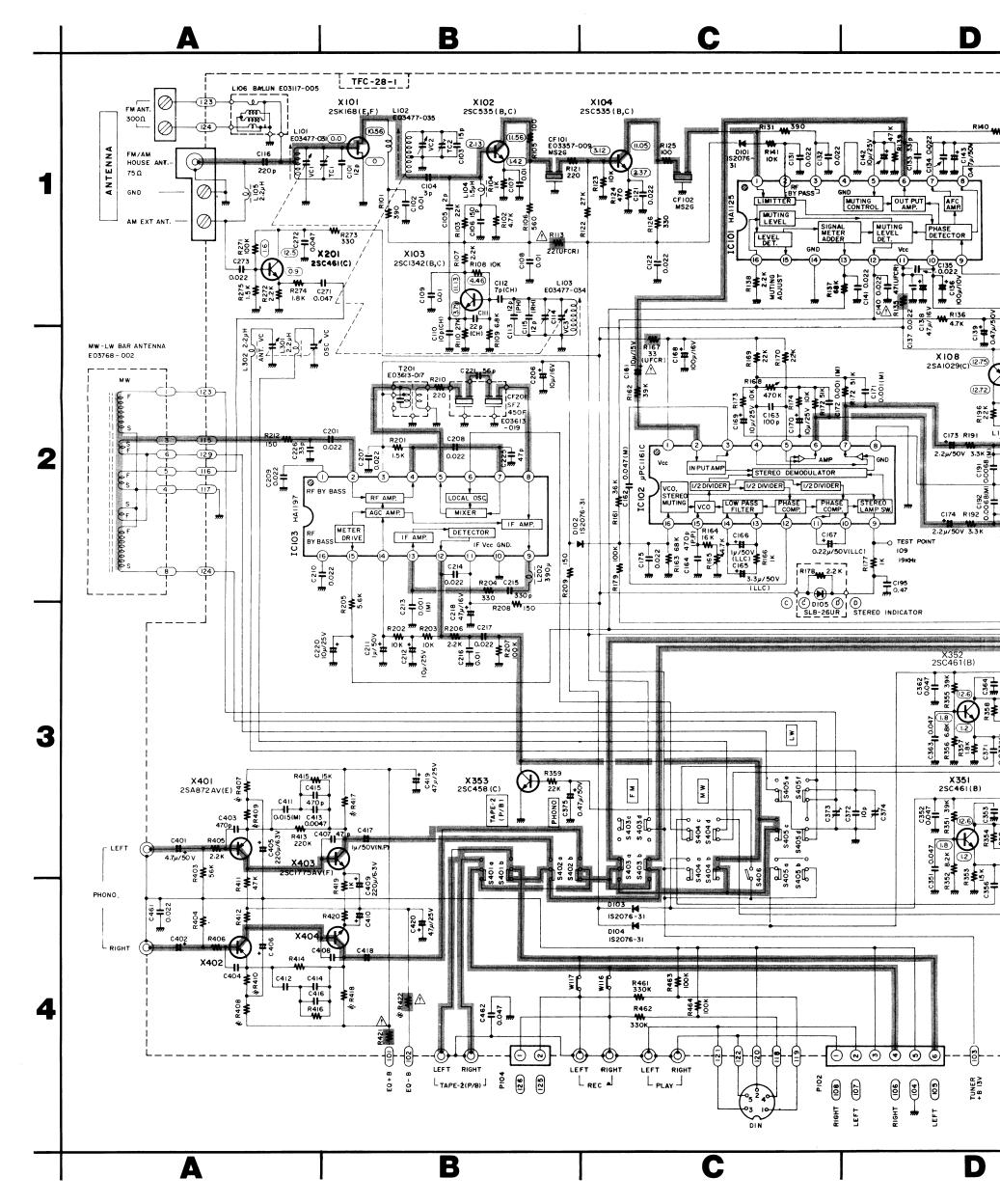
## Notes:

- 1. shows DC voltage to the chassis with no signal input.
- 2. \* shows DC voltage to the chassis when 10 mV antenna input applied.
- 3. Voltage values in \_\_\_\_ are positive.
- 4. Voltage values in are negative.
- 5. indicates positive B power supply.
- 6. —— indicates negative B power supply.7. Image: indicates signal path.
- 8. When replacing the parts in the those marked with  $\triangle$ , be sure to ensure safety.
- 9. Parts in red indicate transistors of
- This is the standard circuit diagrams. The design and contents are sunotice.



al input. 10 mV

- 8. When replacing the parts in the darkened area ( ) and those marked with  $\triangle$ , be sure to use the designated parts to ensure safety.
- 9. Parts in red indicate transistors or ICs.
- This is the standard circuit diagram.
   The design and contents are subject to change without notice.



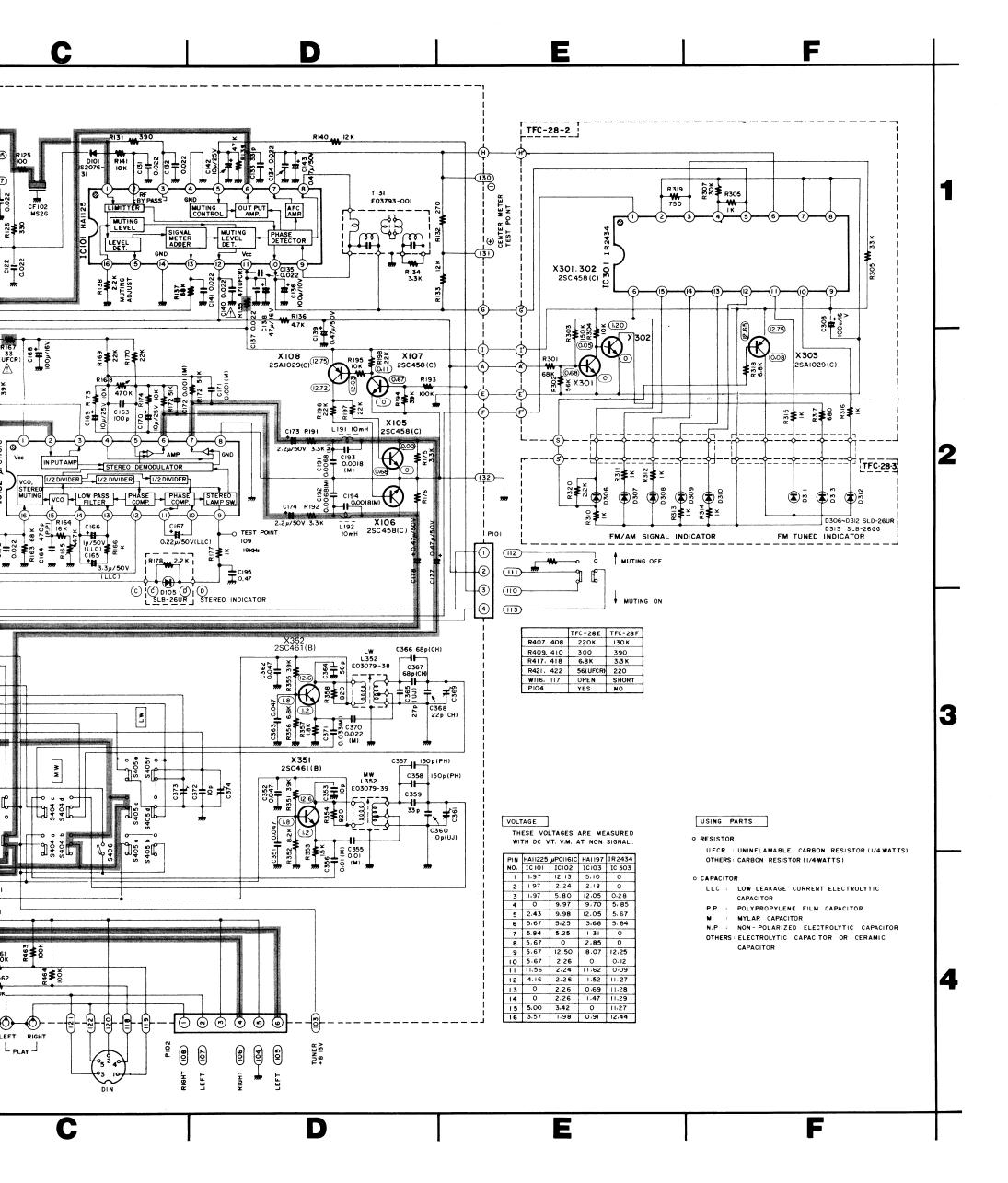
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- The design and content notice.



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B power supply.
B power supply.
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- 8. When replacing the parts in the darkened area ( ) and those marked with  $\triangle$ , be sure to use the designated parts to ensure safety.
- 9. Parts in red indicate transistors or ICs.
- This is the standard circuit diagram.
   The design and contents are subject to change without notice.

# 10. Packing Materials and Part Numbers

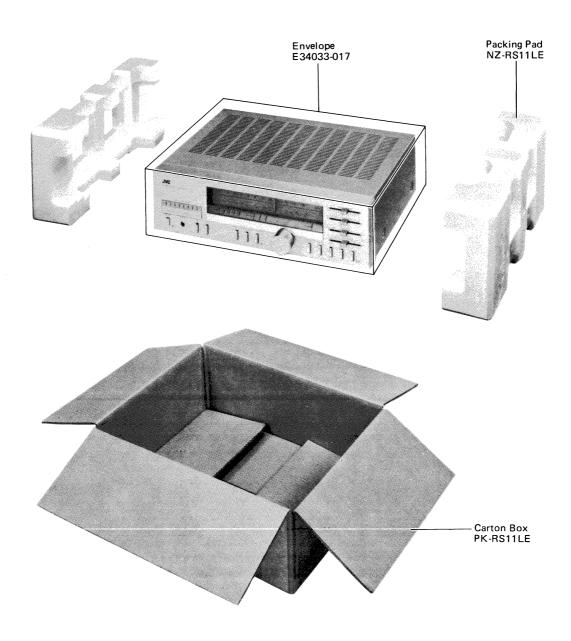


Fig. 15

# 11. Accessories List

Item No.	Part Number	Description	Q'ty
1	E30580-820A	Instruction Book	1
2	BT20013C	Warranty Card (for U.K. only)	1
3	E03614-004	FM Antenna	1
4	E41202-2	Envelope for Instruction Book	1